

A young man with dark hair, wearing a black long-sleeved shirt and white baseball pants with a gold stripe, sits on a green wooden bench. He is holding a wooden baseball bat across his lap. The background is a green-painted brick wall. The lighting is dramatic, with strong shadows.

# MASTERING NIKON SPEEDLIGHTS

A Complete Guide to  
Small Flash Photography and the  
Creative Lighting System

ALAN HESS

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**PEACHPIT PRESS**

# **MASTERING NIKON SPEEDLIGHTS: A COMPLETE GUIDE TO SMALL FLASH PHOTOGRAPHY AND THE CREATIVE LIGHTING SYSTEM**

**Alan Hess**

Peachpit Press

[www.peachpit.com](http://www.peachpit.com)

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*This book is dedicated to my wife, Nadra;  
without her, none of this would have been possible.*

# Contents

Acknowledgments

Introduction

## I LET THERE BE LIGHT

### 1 UNDERSTANDING THE QUALITIES OF LIGHT

Intensity

Direction

*Front Lighting*

*Backlighting*

*Sidelighting*

*Down Lighting*

*Up Lighting*

Color of Light

*Color Temperature*

*White Balance*

*Flash Color*

Hard and Soft Light

Inverse Square Law and Light Falloff

Final Thoughts

### 2 MEASURING THE LIGHT

Light Meters to the Rescue

How a Camera Sees Light

Nikon Metering Modes

*Spot Metering*

*Highlight-Weighted Metering*

*Center-Weighted Metering*

*Matrix Metering*

Measuring Ambient Light and Flash Light

Final Thoughts

### 3 CONTROLLING EXPOSURE

Exposure Settings

*Shutter Speed*

*Aperture*

*ISO*

*Equivalent Exposures*

Exposure Modes

Exposure Compensation

*Exposure Values*

*Adjusting Exposure Compensation*

Flash Compensation

Exposure Compensation with Flash Compensation

Final Thoughts

## II GEAR

### 4 THE CAMERA

Creative Lighting System Compatibility

Professional Cameras

Enthusiast Cameras

Entry-Level Cameras

Final Thoughts

### 5 LIGHTING IN YOUR POCKET

How a Flash Works

Current Speedlight Lineup

*SB-300*

*SB-500*

*SB-700*

*SB-910*

Specialized Speedlights

*SB-R200 Remote*

*SU-800 Wireless Speedlight Commander*

Older and Discontinued Flashes

*SB-600*

*SB-800*

*SB-900*

Final Thoughts

## **6 MAKING THE MOST OF THOSE COOL EXTRAS**

Batteries

*Types of Batteries*

*Care and Feeding of Batteries*

*My Battery Plan*

Supplemental Battery Pack

TTL Remote Cords

Close-up Kits

Final Thoughts

## **7 LIGHT MODIFIERS FOR SMALL-FLASH PHOTOGRAPHY**

Speedlight Options

*Zoom the Flash Head*

*Wide-Angle Diffuser Panel*

*Tilt and Rotate*

*Bounce Card*

*Flash Illumination Patterns*

Diffusers

*Diffusion Dome*

*Umbrellas*

*Softboxes*

*Diffusion Panel*

Snoots, Grids, and Gobos

*Snoots*

*Grids*

*Gobos*

Gels

*Color Correction*

*Color Wash*

Reflectors

Product Options

*Lastolite Accessories*

*Joe McNally Signature Line*

*LumiQuest Modifiers*

*Honl Photo Light Shapers*

*ExpoImaging Flash Tools*

*Westcott Line*

Final Thoughts

## **8 HOLD ON TO YOUR FLASH**

Flash Stands

Justin Clamp

Light Stands

*Basic Light Stands*

*C-stands*

*Booms*

Brackets

*Umbrella Brackets*

*Cold Shoes*

*Multiple Flash Brackets*

Final Thoughts

## **III CREATIVE LIGHTING SYSTEM**

### **9 FLASH FUNDAMENTALS AND THE CREATIVE LIGHTING SYSTEM**

Guide Numbers

Flash Modes

*Through the Lens (TTL)*

*Auto-Flash/Auto-Aperture (A)*

*Guide Number (GN)*

*Manual (M)*

*Repeating (RPT)*

Flash Value Lock

*Recomposing Your Image*

*A Photo Series with Consistent Lighting*

*Avoiding Blinkers*

Intelligent TTL Metering

Sync Speed and High-Speed Sync

Wide-Area AF-Assist Illuminator

Flash Color Information Communication

Final Thoughts

## **10 ADVANCED WIRELESS LIGHTING**

The Basics of Off-Camera Flash with AWL

Remote Mode

Commander Mode

*Flash Modes*

*Flash Power Setting*

Repeating Flash Commander Mode

Quick Wireless Control Mode (A:B)

Final Thoughts

## **11 OFF-CAMERA FLASH TRIGGERS**

Working with Groups

Radio Triggers

*Advantages to Using Radio Triggers*

*Disadvantages to Using Radio Triggers*

*Using Radio Triggers*

*Radio TTL*

SU-4 Mode

*Setting the SU-4 Mode*

*Flash Modes Available in SU-4 Mode*

*Using SU-4 Mode*

Mixing Radio and Line of Sight

Final Thoughts

## **IV LIGHTING TECHNIQUES FOR PEOPLE AND PRODUCTS**

## **12 PORTRAIT LIGHTING**

Shadows and Light

Basic Lighting Patterns

*Rembrandt Lighting*

*Loop Lighting*

*Butterfly Lighting*

*Split Lighting*

*Broad and Short Lighting*

Soft Light vs. Hard Light

Using One Light and Two Lights

Using Three or More Lights

Environmental Portraits

*Before the Shoot*

*Taking the Portrait*

Location Lighting Packing Checklist

Final Thoughts

## **13 LIGHTING ACTION SHOTS**

Freezing Action

*Sync Speed*

*High-Speed Sync*

*Flash Power*

*Multiple Flashes*

Showing Motion

Final Thoughts

## **14 PRODUCT PHOTOGRAPHY LIGHTING**

Product Photography Basics

Product Photography Setup

Prepping Your Items

*General Cleaning*

*Jewelry*

*Cleaning Electronics*

Reflections

*Different Surfaces*

*Different Colors*

*Flagging the Light*

Working in Close

*Choosing the Right Lens*

*Controlling the Depth of Field*

*Close-Up Kit*

Product Lighting Strategies

*One Speedlight*

*Two Speedlights*

*Multiple Speedlights*

Drops, Splashes, and Pours

Final Thoughts

## **V SPEEDLIGHTS IN ACTION**

### **15 PORTRAIT SHOTS WITH ONE FLASH**

Dancer

Dugout

Kids

Cody

Librarian

Final Thoughts

### **16 PORTRAIT SHOTS WITH ONE OFF-CAMERA FLASH**

Dancer

Dugout

Kids

Cody

Librarian

Final Thoughts

### **17 PORTRAIT SHOTS WITH MULTIPLE OFF-CAMERA FLASHES**

Dancer



Dugout

Kids

Cody

Librarian

Final Thoughts

## **18 SPEEDLIGHTS USED FOR ACTION**

Golf Swing

Soccer Kick

Bike Rider

Karate Kick

Final Thoughts

## **19 PRODUCT PHOTOGRAPHY EXAMPLES**

Strawberry Splash

Sunglasses and Watch

Knife Set

Camera Body

Beverage Bottle

Wine Pour

Final Thoughts

Index

Speedlight Resources

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# Introduction

For years, I would just tell people I was an available-light photographer, and I would leave my Speedlight in the bag or, more often, at home. I would then end up making excuses about the quality light and my inability to change it.

That all changed one morning back in 2003 when I witnessed Joe McNally demonstrating the Nikon SB-800 Speedlight and the new Nikon Creative Lighting System. I watched in amazement as Joe photographed a dancer leaping across the stage using a couple of small flashes that were triggered right from the camera while audience members held the remote flashes. The resulting images were properly exposed, were well lit, and looked as if they were shot with a full studio worth of gear instead of just a couple of small flashes. The ease of setting up and using multiple flashes off-camera without big battery packs or extra gear was amazing. That day changed how I felt about using small flash, and it opened up a whole new way of lighting. With the Creative Lighting System, Nikon had created a way for the camera and flash to work together to get the best lighting possible, and Advanced Wireless Lighting now offered the amazing ability to trigger off-camera Speedlights with a Speedlight on the camera.

I wrote *Mastering Nikon Speedlights* with a very specific goal in mind. I intended this book to be a resource for anyone who wants to learn about the Nikon Creative Lighting System and small-flash photography. Not only will it help you better understand using on- and off-camera flash techniques, you won't have to spend a fortune on dozens of Speedlights and every light modifier ever made to use these techniques.

I work on a really tight budget, and all the gear I purchase needs to be something that I will get maximum use out of. All the gear I use in this book is stuff I actually own and use regularly, but I did not buy it all at once. I started with a single SB-800 in 2003 and added gear as I needed it. The great part about the Nikon Creative Lighting System for the budget-minded photographer is that the older Speedlights, such as the discontinued SB-600 and SB-800, work right alongside the newer units like the SB-910 and SB-500.

Here's a section-by-section breakdown of what you'll learn:

- **Section 1** : In this first section, you'll learn the basics of light. The better you understand how light behaves, the

better you can control it. [Chapter 1](#) covers the intensity, direction, and color of light. [Chapter 2](#) deals with measuring the light and camera metering modes, and [Chapter 3](#) covers the basics of exposure, including the shutter speed, aperture, ISO, and equivalent exposures. [Chapter 3](#) also deals with the exposure modes on the camera and exposure compensation.

- **Section 2** : The chapters here are all about gear: the cameras, Speedlights, batteries, accessories, light stands, and light modifiers. [Chapter 4](#) details the current lineup of Nikon DSLRs and which CLS functions are available on each type of camera from the professional models all the way to the entry-level model. Likewise, [Chapter 5](#) details all the Nikon Speedlights available, including such discontinued models as the SB-800 and SB-600. These are great flashes, and even though they are not available through Nikon anymore, plenty of photographers (including me) are still using them, and many times they can be purchased for a lot less than new Speedlights. This section also covers the types of batteries, battery packs, TTL cords, the Close-Up Kit, the light modifiers that I use for small flashes, and the different ways to hold your flash when used off-camera.
- **Section 3** : This section delves into the Creative Lighting System (CLS) in depth. Here you'll find chapters on flash fundamentals and the Creative Lighting System, Advanced Wireless Lighting features, and off-camera flash triggers.
- **Section 4** : At this point, the book starts putting to work all the tools and techniques from the previous sections. You'll learn about portrait lighting, working with moving subjects, and lighting for product photography. These chapters cover the basic ideas and concepts behind these different subjects.
- **Section 5** : The final part of the book is filled with examples of using the Nikon Creative Lighting System in real-world scenarios. [Chapters 15](#) through [17](#) demonstrate lighting the same subjects first with a single flash connected to the camera, then using a single off-camera Speedlight, and finally using multiple Speedlights. I wanted to make sure that the examples using the Speedlights were those that anyone could do and not just photographers with a closet full of Speedlights. The idea is to show that you can get great shots without having to have tons of gear; it's more about using what you have. [Chapter 18](#) offers

examples of action portraits, from simple single-Speedlight shots to more complicated setups. The final chapter contains examples of product photography and shows what you can accomplish with just a few lights at your disposal.

- **Appendix** : As an added value, I compiled a “**Speedlight Resources**” appendix that lists all the gear I used in the book and where to get it, providing all the URLs for the companies mentioned. To access this bonus content, just log in or join peachpit.com (it’s free) and then enter the book’s ISBN on this page: [www.peachpit.com/store/register.aspx](http://www.peachpit.com/store/register.aspx) . After you register the book, a link to the appendix will be listed on your Account page under Registered Products. (If you purchased an electronic version of this book, you’re set—the appendix is already included in it.)

I wrote this book to cover a wide audience from beginners to those who already have the basics down but want to experiment with the Creative Lighting System. With that in mind, not all of you will need all the chapters in this book. For those who are just starting out, I recommend starting at the beginning and working through the chapters in order because they do build on each other. For those photographers who already have the basics down, you might just want to skim the first section as a quick refresher before getting to **Section 2** . Because **Section 2** covers the gear used, it is more of a reference as you use the Nikon Speedlights. **Chapter 5** in particular is meant to be referred to as you use the actual flashes; it covers the buttons, dials, and settings for the current compatible Speedlights all in the same place.

The rest of the book is meant to be read in order, but you can skip around if, for example, you are more interested in photographing products and want to dive into those chapters first.

I hope you enjoy this book and have fun using your Speedlights both on and off the camera.

Alan

June 2015

# I: Let There Be Light



ISO 200 1/160 SEC. F/5.6 SB-800 REMOTE SU-800 COMMANDERS

There is no point in discussing the Nikon Creative Lighting System, or photography at all, without first discussing light. Light is the most important element in any photograph. Light is all around us and dictates how our photos look.

This section covers the qualities of light, how to measure light, and how to control exposure. You may be tempted to skip this section and hurry on to the techniques. Don't. Without a good foundation in these basics, it's difficult to build the more advanced lighting effects that the Nikon Creative Lighting System allows you to create.

**CHAPTER 1 Understanding the Qualities of Light**

**CHAPTER 2 Measuring the Light**

**CHAPTER 3 Controlling Exposure**

# 1. Understanding the Qualities of Light



NIKON D4 ISO 100 1/250 SEC. F/4.5

Light is all around us. We usually don't give it a second thought, but as photographers, we should. We need to not only look at the available light but also analyze it. How bright is it? Where is it coming from, and at what angle does it strike the subject? We need to consider the light that is already there and any light we plan on adding. We need to be able to use the light to tell the viewer where to look and what to look at. The light can reveal features, or the shadows can hide them.

To be able to use light, you have to understand light. All light has qualities that you can use in your images. This chapter is about those basic qualities: intensity, direction, and color, along with the differences between hard light and soft light and the important Inverse Square Law that dictates how light loses its intensity as it travels. The concepts in this chapter are the building blocks, the basis, for everything that follows. Take the time to review the fundamentals now so that you can be more creative later.

## Intensity

The *intensity* of the light is how bright the light is. This applies to both the *ambient* light (the available light already present) and any light you add to the scene. Before you can think about adding light, always consider the amount of ambient light already in the

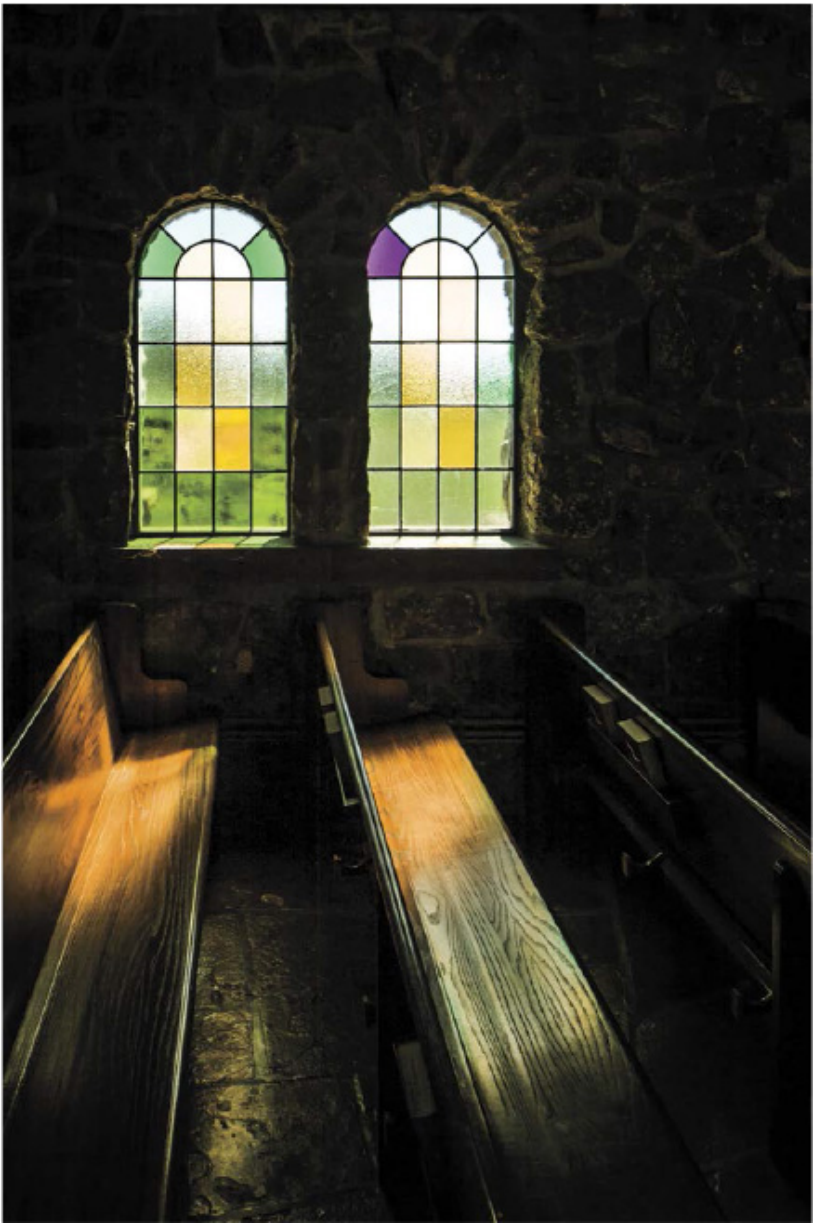


scene. Are you standing outside under a blue sky that is so bright you need sunglasses just to look around, or are you standing inside where the only illumination is the weak sunlight trying to make its way through a small window? The intensity of ambient light will dictate what camera and flash settings you will need to use to get the results you want. Consider, for example, the bright afternoon sun in [Figure 1.1](#) . There is enough light to illuminate the subject, the background, and everything else. The scene in [Figure 1.2](#) has a lot less light illuminating the scene, however, so areas fall into shadows. The intensity of the light is cut by the stained glass windows.



NIKON D4 ISO 200 1/200 SEC. F/10

**Figure 1.1** As you can see, there is plenty of light here to illuminate not only the model but everything in the scene.



NIKON D1X ISO 200 1/100 SEC. F/5

**Figure 1.2** There is not a lot of light in this scene. Adding light from a flash is a lot easier when the intensity of the ambient light is low.

The great part about using a flash is that you can control the intensity of the light. You can increase or decrease the output from the flash or, if needed, add more flashes. It is much more difficult to control the intensity of the ambient light directly.

## Direction

The *direction* of the light determines where the shadows will be in your photograph. The shadows help create depth and interest. When I was growing up, one of my favorite images was the photo of John Lennon that came with the *White Album* . The shadows on the left side of his face created an image that was interesting, making me want look at it. It was not the bright right side of the face that held my gaze but the side with the shadows. The direction of the lighting can really impact how we feel about the subject. It can make the same person look open and friendly or closed and angry. The shadows are what add the drama to the baseball player in [Figure 1.3](#) .



NIKON D4 ISO 400 1/250 SEC. F/16

**Figure 1.3** The direction of the light helps to show or hide features. In this case, I placed the light off to camera right, creating shadows on the right side of the player's face.

Light can strike the subject from five basic directions: front, back, side, down, and up. None of these is right or wrong; they all have a purpose, and it's the photographer's job to use the light in the best possible way. Take a look at the basic directions and what the light actually does.

### Front Lighting

With *front lighting* , the light is directly in front of the subject and can be really unflattering (think passport or driver's license photo), but that doesn't have to be the case. A lot depends on the type of



light, the subject, and what type of image you want to produce. The issue with direct front lighting is that it tends to flatten out the subject because there are no shadows to add character or depth.

Front lighting has a bad reputation partly because people use that little pop-up flash on their camera or they put a Speedlight on the camera and then aim the flash right at the subject. As you can see in [Figure 1.4](#) , the light tends to wash out any of the features.



NIKON D4 ISO 200 1/60 SEC. F/5

**Figure 1.4** Nicole is a great sport, letting me take this photo with straight-on lighting. You can see flat lighting both in her face and on the wall behind her. The small light source, in this case a single SB-910, creates a hard light, as you can see from the hard shadow on the wall.

The results of basic front lighting are never flattering, but with some small adjustments they can be. For example, just adding a diffusion dome over the head of the flash or putting the flash in a small softbox to make the light softer can have a large impact on the image.

There is nothing inherently wrong with front lighting, especially when it is combined with other lighting. Add some back lighting or an overhead light, and you have the start of what could be some flattering light.

## Backlighting

When a subject is *backlit*, the light is actually pointed at the camera and is blocked by the subject. In the extreme cases, this produces a silhouette, which can make for a strong image, if the subject has a clear outline. Backlighting can also help to make your subject stand out from a background when combined with other lights that illuminate the subject.

Popular techniques to make a subject stand out are to add a light in the background facing back at the camera or to use the ambient light to act as the backlight and a flash to act as the main light. If you are limited by the number of flash units you have, then using the available light in this way can create great images. For example, you can use the light coming in through a door or window by placing the subject with their back to the light and then use a flash to add illumination to the front of the scene.

In **Figure 1.5**, I placed a second flash, in this case an SB-800, right behind Nicole aimed at her head. The main light was the SB-910 in a 26-inch Rapid Box Octa that created a beautiful soft light.



NIKON D4 ISO 200 1/250 SEC. F/8

**Figure 1.5** The backlight highlights her hair, while the main light illuminates Nicole.

## Sidelighting

Lighting that comes in from one side or the other is a great way to start lighting figures. The light can be used to define a shape, especially when a hard light is used to create hard shadows. This

type of lighting can be really dramatic and tends to be better for men than woman. For the photo of Tim in [Figure 1.6](#) , there was one off-camera flash used to the left, creating a hard light on his face.



NIKON D700 ISO 100 1/250 SEC. F/11

**Figure 1.6** A hard light from the side makes for a more dramatic portrait of Tim.

## Down Lighting

*Down lighting* is extremely common. After all, we are used to the sun being above us during the day, and most indoor locations put lights up high or on the ceiling pointing down. Light, especially hard light, from above can be rather unflattering, however. Hard light from above can make deep shadows under a person's chin, nose, and brow. The thing is that we expect light to come from above. It's programmed into us that the source of natural light is the sun, and the sun is usually over our heads except for that small window when it is rising or setting. The down light in [Figure 1.7](#) hides the features of Nicole's face with deep shadows, especially in her eyes.





NIKON D4 ISO 200 1/250 SEC. F/8

**Figure 1.7** A light from above creates shadows and hides features. This is especially true when it comes to the eyes of the model; as you can see here, they are in deep shadows.

### **Up Lighting**

Light that comes from a low position and shines upward at the subject does not happen a lot in nature and can be rather

disturbing—a fact that the designers of horror movie posters love to exploit. I remember trying to scare my younger brother when we were kids by holding a flashlight under my chin with the light shining up. The result is pretty scary stuff and not the best way to make a model look, unless you are going for that unsettling effect. In [Figure 1.8](#) the light creates hard shadows and an unflattering look.



NIKON D4 ISO 200 1/250 SEC. F/8

**Figure 1.8** A single hard light coming up from under the face makes for great horror lighting but is rather unflattering.

A touch of light bounced up and blended in with other lights, however, can really add some great light to your image. It goes to show that no lighting is all bad; it just needs to be tweaked, modified, bounced, or diffused to add to your image instead of detracting from it.

## Color of Light

Light has color, and different light sources have different colors. The human brain is an amazing thing; it automatically can adjust the information that it receives from your eyes based on the situation to compensate for these color differences. The sensor in your camera doesn't have that capability yet, but I am sure they are working on it in a lab somewhere.

There is a simple way to see how the color of light works. Take a white piece of paper outside and hold it up. It looks white to you, right? While you're outside, take a photo of that piece of paper. Now go back inside. Look at the same piece of paper—I bet it still looks white—and then take a photo of the paper inside. Compare the inside photo to the outside one ( [Figure 1.9](#) ). The paper isn't the same color in both, is it? That's because the light outside and the light inside are from two different sources and they each have a different color.



**Figure 1.9** This is the same white piece of paper photographed inside and outside. You can see that the lights inside were a

little warm, making the paper seem slightly more orange, whereas the light outside was much cooler, making the white paper look blue.

The color of the light can create a tone and mood in your images. The more red and orange in the light, the warmer the images will feel, while the more blue, the cooler. Photograph a person under a cool light, and he can start to look pale and cold. Warm the light up a little, and he looks healthy and robust.

The light will also pick up the color of any surface that it is bounced off. This doesn't matter if the surface is neutral, like white, but it can make a big difference if the surface is colored. For example, if you are photographing someone near a red wall, the light will pick up some of the red color as it bounces off the wall and strikes the subject. The red in the wall will warm up the light and start to introduce a red colorcast to the photo. This might be what you want, or it could end up ruining the shot. You have to pay attention to the sources of the light, including the indirect sources. You can use the color of the bounced light to your advantage when you start to modify the light using reflectors.

---

#### Note

Reflectors and other light modifiers are covered in [Chapter 7](#).

---

## Color Temperature

The color of light is measured using temperature on the Kelvin scale, shown in [Table 1.1](#). The lower the temperature, the more red and orange there is in the light; the higher the temperature, the more blue with white in the middle. So, on one end of the scale is the light produced by a match or candle ([Figure 1.10](#)), and on the other is that clear blue sky ([Figure 1.11](#)).

LIGHT	APPROXIMATE TEMPERATURE IN KELVIN	COLOR OF THE LIGHT
Candle light	1900K	Very Red
Sunrise/sunset	2000–3000K	
Household incandescent bulbs	2500K–2900K	
Photographic tungsten bulbs	3200K	
Early morning/late afternoon	3500K	
Halogen	3200–3500K	
Fluorescent	3200–7500K	
Average noon	5500K	White
Flash	5500K	
Overcast sky	6000–7500K	
Shade	6500–8000K	
Clear blue sky	10,000–16,000K	Very Blue

**Table 1.1 The Color and Temperature of Light**



NIKON D5200 ISO 100 1/1000 SEC. F/6.3

**Figure 1.10** Candlelight is warm with a red/orange glow.





NIKON D700 ISO 100 1/125 SEC. F/5.6 50MM LENS

**Figure 1.11** In the shade, the color of the light is a lot less red and a lot more blue.

## White Balance

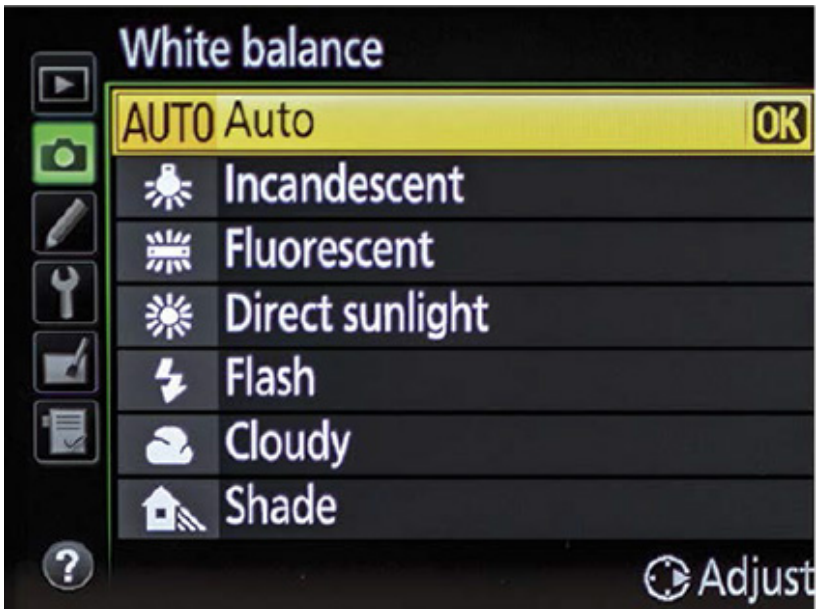
Cameras deal with these different colors of light with the *White Balance setting*. The setting basically tells the camera what the color of the light is so that the colors in the image are rendered as

close to natural as possible. The White Balance setting on the camera allows you to pick from presets ( [Figure 1.12](#) ), or you can set the Kelvin temperature directly. The commonly available presets are as follows:

- **Auto** : In this mode the camera reads the color of the light in the scene and tries to automatically adjust to create a natural-looking image. The camera adjusts the color every frame so even the smallest change in the color of the light results in a change in the white balance.
- **Incandescent** : This setting is used when shooting under incandescent bulbs, usually found in most households.
- **Fluorescent** : Because there are so many different types of fluorescent bulbs, Nikon offers seven options under this setting to help you get the best results. All the Fluorescent settings basically try to do the same thing: remove the green cast that fluorescent bulbs add to the image. Each of the seven types of White Balance settings work with different types of fluorescent bulbs:
  - Sodium-vapor lamps
  - Warm-white fluorescent
  - White fluorescent
  - Cool-white fluorescent
  - Day-white fluorescent
  - Daylight fluorescent
  - High-temperature mercury-vapor
- **Direct Sunlight** : This setting is for shooting under the white light of the direct sun.
- **Flash** : This setting adds a little red/orange to the image to help with the cooler light from the flash.
- **Cloudy** : The camera adds a little warmth to the image to counter the lightly cooler light.
- **Shade** : The camera adds a little pink to the image to offset the colder blue cast that can be in the shadows.
- **Preset** : This setting allows you to measure the light present and set the camera based on what the camera sees as white. In this setting, you take a photo of a white card under the lighting conditions, and the camera then reads the color of the light knowing the subject is supposed to be white.



- **Color Temperature** : This setting allows you to directly enter a color temperature from 2500 to 10000. This is really useful if you happen to know the exact color temperature of the lights you are shooting under.



**Figure 1.12** The White Balance menu offers presets for various types of light.

Setting the white balance is easy; you can just pick one of the White Balance settings in the menu system of your camera. Some cameras even have a dedicated White Balance button where you can just press the button and dial in the white balance. Often it is tough to determine the exact color of the light present, but there is an easy way to see how the camera will render the color. If you put your camera in Live View mode, you can see how the different White Balance settings affect the color instantly ( [Figure 1.13](#) ).



NIKON D4 ISO 400 1/250 SEC. F/4.5

**Figure 1.13** These two shots were taken under the same light using different White Balance settings. You can see that the wrong white balance (right) can really damage the look of the image.

## Flash Color

The color of the light coming from a flash is constant. It doesn't matter if you are inside or outside or what time of time it is. You can change color of the light from a flash by using colored gels in front of the flash head. This allows you to match the color of the flash's light to the ambient light in the scene, making a more natural-looking image. Nikon supplies some basic color correcting gels with some of its Speedlight units, usually just the basic Fluorescent and Incandescent filters. With the newer Speedlights, gels are supplied as hard plastic pieces that snap on the front of the Speedlight, as shown in [Figure 1.14](#) . With the older Speedlights, gels were in the form of pieces of colored acetate.



**Figure 1.14** The plastic cover on the front of this SB-700 is a fluorescent correction gel. Because the light from a fluorescent bulb renders green in the camera, a green filter is used to match the flash to the ambient light.

You are not limited to the correcting gels that come with the Speedlights. Lots of other gel options are available from Nikon and third parties. With these you can change the color of the light from the flash to create natural-looking light or for creative purposes.

#### Note

For more detail on the different gels, see [Chapter 7](#).

## Hard and Soft Light

Photographers often refer to the light in a photograph as hard or

soft. The easiest way to think about hard and soft light is to consider the shadows. Hard light creates a hard shadow with a distinct line on the edge of the shadow. Soft light creates a softer shadow with a gradual transition at its edge. In hard-lit [Figure 1.15](#) you can see the hard line of shadows, while [Figure 1.16](#) has no hard shadows at all.



NIKON D4 ISO 100 1/250 SEC. F/5.6

**Figure 1.15** A small, hard light source created a hard shadow

on the face of Chance.



NIKON D4 ISO 400 1/250 SEC. F/4

**Figure 1.16** Taking this photo in a shady spot created a soft light with no hard shadows at all.

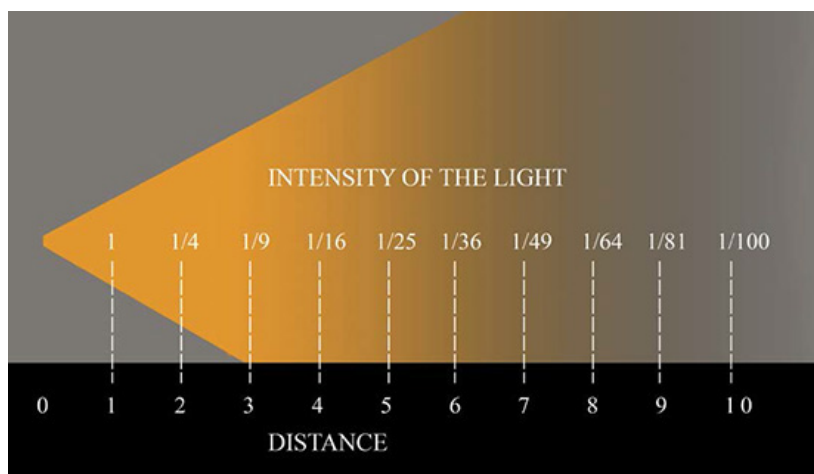
Two factors come into play when creating hard or soft light. The first is the size of the light source, and the second is the distance between the light and the subject. These two factors work together

to create the size of the light relative to the subject. The bigger the relative light source, the softer the light. For example, the sun is a huge light source, but it is far away, which makes it a relatively small hard light. A Speedlight is a small light source, but when you add a softbox and move it in close to your subject, it becomes a relatively large light source creating a soft light.

## Inverse Square Law and Light Falloff

Light travels in a well-defined manor. As light travels from the source, it loses power rather quickly. The rate that it loses power is dictated by the Inverse Square Law, which states that when you double the distance between the light source and the subject, only one-fourth of the light still reaches it. Elsewhere you can find a more detailed explanation of the math involved, but it's not essential; you can work with the general idea (which is good, because I really stink at math, as any of my college professors can tell you). The general idea is that light spreads out as it travels, so less of the light is actually striking (and illuminating) the subject.

You can use this concept to control what your flash illuminates in a scene. The closer that you place the light source to the subject, the quicker it will fall off behind them. **Figure 1.17** illustrates this effect.



**Figure 1.17** This chart shows how light falls off as it travels.

By controlling the light, you control what is and isn't shown in the photo. In **Figure 1.18**, I placed the light as close as possible to Nicole and used the lowest power setting that still gave me enough light on her face. The light drops off creating deeper shadows and a more dramatic image.



NIKON D4 ISO 100 1/250 SEC. F/9

**Figure 1.18** Putting the light close to Nicole allows it to fall off after illuminating her.

## Final Thoughts

Understanding the basics of light is the first building block in creating better images. Knowing how the direction and intensity will affect the subject allows you to show your subject in the best possible way. Understanding how the color of the light is



determined by the light source, and how to use or correct that color, can add tone and feeling to your photos. Hard and soft light, and using the way light falls off as it travels, can help light your subject in the best possible way. In the next chapter, you'll learn about measuring the light and how your camera sees the light in the scene.



NIKON D4 ISO 100 1/60 SEC. F/4



## 2. Measuring the Light



NIKON D4 ISO 400 1/400 SEC. F/5 SB-910

The first steps to making a photograph is to determine how much light is present in a your scene and what you are going to do about it. If you understand how your camera measures the light in a scene, you can better capture the image you envision. Light can be measured in multiple ways, and your camera's various metering modes can give you different readings while looking at the same scene. The Nikon Creative Lighting System uses a Through The Lens (TTL) technology to set the power of the flash based on the meter reading, so knowing what the meter is doing will help you understand how the system is working and why you get the results you do.

### Light Meters to the Rescue

To successfully capture a scene, you need to know how much light is in the whole scene and, more specifically, how much light is illuminating the subject. Looking at the young skateboarder in [Figure 2.1](#) , for example, you need to know how much light is on her face and the skateboard so you can set the camera to capture them correctly.



NIKON D3200 ISO 200 1/100 SEC. F/5.0

**Figure 2.1** Being able to measure the light in a scene enables you to choose your camera settings more effectively.

You can measure light in two ways: by using a separate light meter or by using the light meter built into your camera. Once you understand how each works, you can work with the results they give you.

Light meters come in two flavors: reflected and incident. Although they both measure the light in the scene, they do so in two very different ways. A *reflected light meter* measures the light as it bounces off the subject, while an *incident light meter* reads the light that is striking the subject. Both types of meters try to give you the

exposure settings that will result in a properly exposed image.

- **Incident metering** : Measuring the light *before* it strikes the subject will give you a more accurate exposure setting because you measure the light that's illuminating the subject and not the light bouncing off the subject. In other words, the light you're measuring isn't affected by the color, shape, or reflectivity of the subject. To take a reading, you usually position an incident light meter's dome where the light will hit it (near the sculpture in [Figure 2.2](#) , for instance) and press the appropriate button. The meter then will give you the exposure settings.



NIKON D4 ISO 200 1/1000 SEC. F/5.6

**Figure 2.2** The raised dome of an incident light meter reads the

light in the scene before it strikes the subject, giving you an accurate reading of the amount of light before reflections. Here the light reaching the statue will correctly expose the subject at ISO 200, 1/000 sec., and f/5.6.

- **Reflected metering** : This type of light meter measures the light *after* it reflects off the subject, so the color of the subject comes into play. A white subject or background, for example, will reflect a lot of light, but a black subject or background will reflect little to no light. A reflected light meter's reading is affected not only by the amount of light in the scene but also by the reflectivity of your subject. Your camera has a built-in reflective light meter, but stand-alone meters that read reflected light are available as well. As shown in [Figure 2.3](#) , these meters have an eyepiece on one side and a lens on the other through which you take a reading.



**Figure 2.3** This light meter can measure the reflected light, as well as the light falling on a subject.

When a light meter of either type reads a scene, it translates that information to give you settings that will result in a nice, medium gray. This works out great if your subject is a nice medium gray or if the scene has an equal amount of bright area and dark area. But light meters can be fooled pretty easily, especially if the subject is predominately black or white. For example, when the subject is very light, such as a snow-covered landscape, a ski scene, a bride in a white dress, or anything backlit by a bright sky, the light



meter measures the light, sees that it is bright, and returns settings that will turn all the white areas gray. When metering a subject that is predominantly dark, a light meter returns a setting that will make the dark areas lighter, turning the black into gray. To help you work around these situations, your camera has several metering modes, and picking the right one is important in getting the proper exposure settings. You'll learn more about Nikon's metering modes a little later in this chapter.

## How a Camera Sees Light

The sensor in your camera records the light that is bounced off the subject. The trouble is that the sensor doesn't record as much information as your eyes actually see, which can make a big difference in how your photos actually look compared to how you think your photos will look. For example, I remember the scene in [Figure 2.4](#) as having much more detail in the both the dark areas of the plane and the clouds on the horizon.



NIKON D700 ISO 100 1/125 SEC. F/4.0

**Figure 2.4** When I photographed this seaplane at Los Tortugas off the coast of Florida, the sky contained a lot more detail than the camera captured.

The key to knowing what is going on when your camera captures an image is to understand the dynamic range of your camera's sensor and then use that information to capture the image the way you want. Our eyes can see a wider range of dark and light values than the camera can record. We can see subtle changes in the

different blacks in the groom's tuxedo at the same time as the subtle variations in bride's dress, for example, even if some of the scene is in bright sunlight and some is in shade. The camera can't even come close. To put it another way, we can see more than 16 f-stop equivalents in a scene, while the camera can record about 7 or 8 only. The reason is that when we look at something, our eyes are constantly moving around the scene and adjusting for the changes in the light as it passes over different areas. We can make out the detail in the deep shadows and then, a split second later, also discern the details in the bright spots. Our eyes do this so quickly that we can get all the details in the scene at practically the same time. Our cameras can't do this yet. Instead, the camera has to record the scene as it appears right in front of the lens.

Think of the dynamic range of a camera as the maximum range of bright tones and dark tones that it can record at the same time. When the dynamic range of the scene is greater than the dynamic range of the camera, the camera will either overexpose the details in the brightest areas or under-expose the details in the shadow areas. You get to decide through the exposure settings which one is more important to preserve, or you can choose to have a little of both, which at the same time sacrifices the details in the brightest and darkest areas of the image. When you expose for the highlights, you get the details in the bright parts of the image but lose the details in the shadow. Conversely, exposing for the shadows captures the details in the dark areas but overexposes the bright areas.

When you add light from a flash, you are effectively reducing the dynamic range of the scene by making the darker areas not quite as dark. Consider, for instance, the face in [Figure 2.5](#) ; notice how the baseball cap hides it and turns the eyes to dark shadows. Because it was exposed for the highlights, the shot contains detail in the bright cap and sky, but not the face. In [Figure 2.6](#) the face is exposed properly, but the rest of the image is too bright and the sky loses detail. Adding a little fill light in [Figure 2.7](#) created an image with a smaller dynamic range, but now both the face and the sky contain detail, which is much closer to how you would see the scene in person.



NIKON D750 ISO 400 1/250 SEC. F/5.6

**Figure 2.5** The details of the face are hidden in the shadows of the cap, but the bright parts in the sky are not overexposed.



NIKON D750 ISO 400 1/100 SEC. F/5.6

**Figure 2.6** Increasing the exposure captures more details in the shadowy area under the cap but loses details in the overexposed sky.





NIKON D750 ISO 400 1/250 SEC. F/5.6

**Figure 2.7** Using a flash to illuminate the area under the cap enables you to capture the details in the face and the sky in the same image. The flash has compressed the dynamic range of the image.

## Nikon Metering Modes

To give you a better chance to get the best results in every situation, all Nikon cameras have a built-in light meter that offers multiple modes for measuring light. Because the camera uses the built-in meter to determine the best exposure, it uses that same information to control the power of an on-camera flash. Nikon's three standard metering modes are Spot, Center-Weighted, and Matrix. In addition, the newest DSLR cameras (currently the Nikon D810 and Nikon D750) offer a fourth mode called Highlight-Weighted. Each of these metering modes looks at the scene in front of the lens in a different way and can produce very different

results, as you'll see in the upcoming sections.

Setting the metering mode depends on the camera model, so check your camera manual for specific details. To set the metering mode on a D4, for example, you press the Metering Mode button ( [Figure 2.8](#) ) and rotate the rear command dial to cycle through the metering modes. On the older cameras, like the D2X, you set the metering mode by pressing and holding the button in the middle of the metering mode selector and then rotating the selector until the mode you want is lined up with the white line ( [Figure 2.9](#) ).



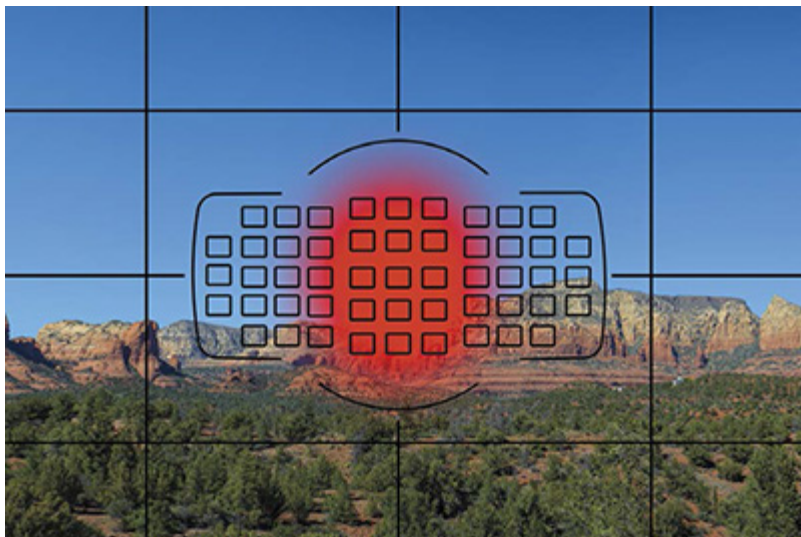
**Figure 2.8** Press the Metering Mode button on the Nikon D4 and then rotate the command dial to change your setting.



**Figure 2.9** Press, hold, and turn the selector to change the metering mode on the Nikon D2X.

## Spot Metering

When set to Spot metering, the camera measures and averages the light within a small area of the frame and ignores the rest. The area that Spot metering uses is tied to the active focus point. With Spot metering, you can set the focus point right on the most important part in the scene and make sure that it is not only in focus but also correctly exposed (see [Figure 2.10](#) ).



**Figure 2.10** The red area is where the camera looks to measure the light in the scene.

The best time to use Spot metering is when you have a subject against a very bright or very dark background. Because the camera tries to average the values of the reflected light to reach neutral values, any large bright or dark areas will radically affect the main subject. A bright background can cause you to underexpose the subject, while a very dark background can cause you to overexpose the subject. Consider, for example, the white background in [Figure 2.11](#) . I didn't want the white wood to impact the exposure, so I used Spot metering right on Nicole's face to get the exposure settings.



NIKON D4 ISO 100 1/100 SEC. F/5

**Figure 2.11** The bright white wood in the background could easily cause underexposure of the subject. To ensure Nicole was correctly exposed, I took a Spot metering reading right on her face and used those setting to take the photo.

## Highlight-Weighted Metering

For 2014's release of the D810 and the D750, Nikon added Highlight-Weighted metering for use with type G, E, and D lenses. (With other lens types, it acts like Spot metering.) When Highlight-Weighted metering is active, the camera analyzes the scene and gives the greatest weight to the brightest parts. This mode is meant to be used to help reduce loss of detail in the highlight areas and is designed for situations with uneven lighting and a background that is much darker than the subject (see [Figure 2.12](#) ).



NIKON D4 ISO 1600 1/160 SEC. F/2.8

**Figure 2.12** Highlight-Weighted metering is designed for event photography where there is uneven lighting, such as a bright light around the performer and a dark background.

## Center-Weighted Metering

Using Center-Weighted metering, the camera analyzes the entire scene but gives a much greater weight to the area in the middle of the frame. Higher-end Nikon DSLRs enable you to adjust the size of the area that gets the majority of attention. [Figure 2.13](#) illustrates the default area that the camera weights most heavily when measuring the light.





**Figure 2.13** The camera analyzes the area in the middle of the frame when using Center-Weighted metering.

Center-Weighted metering works best if your subject is smack-dab in the middle of the frame surrounded by some very bright or dark areas at the edge of the frame. Shooting portraits with Center-Weighted metering could help to get the proper settings because the camera ignores the edges of the frame and pays attention just to the stuff in the middle. The portrait in [Figure 2.14](#) is a good example of when to use Center-Weighted metering because the main subject takes up most of the frame. I do not use this mode often; instead, I usually use the Matrix or Spot metering.

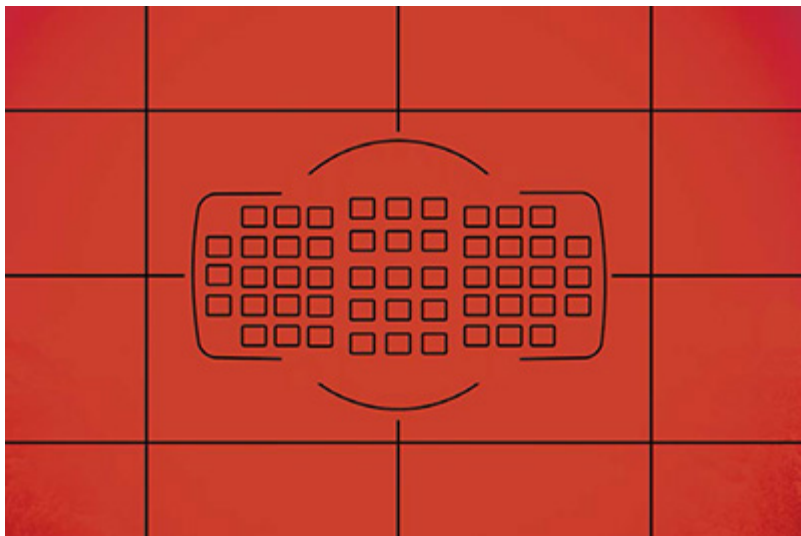


NIKON D700 ISO 200 1/60 SEC. F/6.3

**Figure 2.14** I wanted the camera to look at the model but pay less attention to the bright sky in the background. This was a great time to use Center-Weighted metering.

## Matrix Metering

Analyzing the entire frame, Matrix metering uses information from the camera's image sensor and takes into account the subject's distance information provided by the lens. In this metering mode, the camera looks at the overall brightness and contrast in the scene and compares this information to an internal database of image data, trying to get the best exposure results possible. This metering mode tries to actually figure out what you are photographing to give you the best results. **Figure 2.15** illustrates the amount of the frame that Matrix metering considers; as you can see, it covers the whole area.



**Figure 2.15** When using the Matrix metering, the camera looks at the whole scene and tries to determine what you are photographing. After comparing the data to an internal database, the camera determines the correct settings.

Matrix metering is definitely the most commonly used metering method and works well in most situations (see **Figure 2.16** ). It is also the metering mode that my camera is set to most of the time. My advice is to start with Matrix metering and then progress to experimenting with other metering modes.



NIKON D700 ISO 200 1/160 SEC. F/6.3

**Figure 2.16** There are no real bright or dark areas in this photo of the raffle tickets. Matrix metering handled the exposure perfectly.

## Measuring Ambient Light and Flash Light

Up until this point, all we have discussed is measuring the ambient light in the scene. It is much more difficult to measure the light produced by the flash before you make a photo. When you use studio strobes, it is possible to use a light meter that triggers the strobes at the same time it takes a reading, allowing you to measure the output from the strobes.

When it comes to using the Speedlights, you have to think about it a little differently. Part of the Creative Lighting System is the TTL control of the Speedlight. In this mode, which is covered in more detail in [Chapter 9](#), the flash fires a *pre-flash* when you press the shutter release button. The camera then reads the light in the scene and the light of this pre-flash using your chosen metering mode and adjusts the amount of light the flash produces. The shutter then opens, the flash fires, and the shutter closes, creating the photo. All of this happens so fast that you usually don't see the pre-flash at all.

Allowing the camera control over the flash output results in proper exposure most of the time. It might not be exactly the exposure that you want, but it is a great place to start. You can see in [Figures 2.17](#) through [2.19](#) that the system works for a variety of subjects and situations. In all of these photos, the camera evaluated



the light in the scene and then adjusted the flash output to create a proper exposure using the TTL capability of the Creative Lighting System.



NIKON D4 ISO 400 1/160 SEC. F/3.2

**Figure 2.17** The Speedlight fired a pre-flash, and then the camera adjusted the power of the flash to create a properly exposed image.



NIKON D4 ISO 400 1/250 SEC. F/5.6

**Figure 2.18** This photo was taken in a very dark room, but the camera increased the flash output to make sure that the subject was properly illuminated.



NIKON D4 ISO 400 1/250 SEC. F/5.6

**Figure 2.19** Shooting outdoors with a flash allows you to add some fill light to the scene. Here the camera added just a touch of illumination from the Speedlight to even out the exposure.

## Final Thoughts

Understanding what your camera is doing when it measures the light in the scene is extremely important because the light metering controls the amount of light the flash produces when it fires. The metering mode plays a big part in what the camera looks at, and knowing what is taken into account during metering can help you later if you need to figure out why the photo you took doesn't quite match the scene in front of the camera.

Keep in mind that the measuring of light is going on right up until the shutter is moved out of the way and the photo is taken. Any sudden change in the scene can have unexpected consequences to the exposure settings. The next chapter deals with those exposure settings and how you can control what the camera does.



NIKON D750 ISO 100 1/60 SEC. F/4

### 3. Controlling Exposure



NIKON D2X ISO 400 1/320 SEC. F/8

Pressing your camera's shutter release button moves the shutter out of the way of the camera's sensor, allowing light to enter through the lens and be recorded as an image. That's the easy part. The challenge is to capture the right amount of light so that the resulting image looks the way you want it to look. It is important to remember that you cannot actually control the intensity light with just the camera, but you can decide how much of it to allow through the lens (aperture) and how much you let the sensor actually record (shutter speed). By understanding your camera's exposure settings and how each setting affects the image (and each other), you will gain control over the images you capture. This chapter is about the basics: shutter speed, aperture, ISO, and the different exposure modes available. It also introduces the ideas of equivalent exposures and exposure compensation, two key concepts when it comes to creatively capturing the scene.

#### Exposure Settings

Three settings on your camera work together to create the exposure for your image: shutter speed, aperture, and ISO. *Shutter speed* controls the length of time light is allowed to reach the sensor, the *aperture* is the size of the opening in the lens, and *ISO* controls how sensitive the sensor acts to light. These three settings

are the foundation on which you'll build all your images. First let's look at each individually, and then I'll show you how they work together.

## Shutter Speed

The shutter speed setting controls the *length of time* the shutter exposes the sensor when you press the shutter release button. Shutter speed is measured in time, from fractions of a second to minutes and even hours. Most cameras enable you to set the shutter speed from 30 seconds to 1/4000 second; some cameras offer settings as fast as 1/8000 second. A fast shutter speed means the shutter is open a short time and less light is allowed to reach the sensor. A slow shutter speed leaves the shutter open longer and allows more light to reach the sensor. In addition to time increments, you can also set your shutter speed to Bulb, which keeps the shutter speed open indefinitely and is useful for shots taken with a cable release or remote.

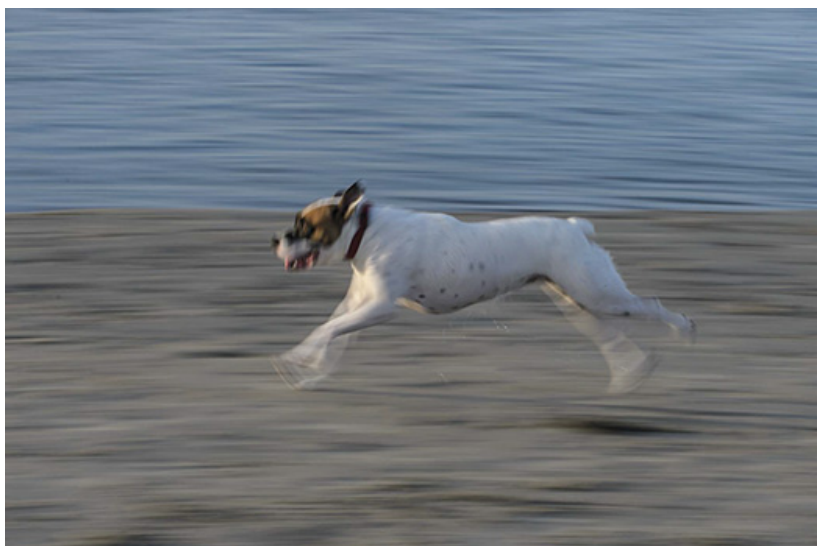
Beyond merely letting the light in, the shutter speed setting you choose also determines how motion is depicted in your images. The faster the shutter speed, the less time your subject can move during the exposure, so fast settings freeze the action. For example, in [Figure 3.1](#) a shutter speed of 1/1000 second froze the surfer in mid-wave. Because the subject was moving so quickly, I needed a fast shutter speed to freeze the action. When the shutter is open for a longer period of time, blurring can occur because the subject (or the camera) has more time to move while the shutter is open. The shutter speed of 1/40 second was nowhere near fast enough to freeze the action in [Figure 3.2](#) ; the dog was running too fast and appears blurred in the image.





NIKON D4 ISO 640 1/1000 SEC. F/2.8

**Figure 3.1** Freezing fast-moving action takes a fast shutter speed. Here I needed 1/1000 of a second to freeze the surfer mid-ride.



NIKON D4 ISO 100 1/40 SEC. F/11

**Figure 3.2** A fast-moving subject like this running dog and a slower shutter speed (here 1/40 second) equals a blurry subject.

Adding a flash to the equation enables you to freeze action, even at longer shutter speeds, because the duration of the flash is very short. The exact duration of the flash actually depends on how much light is output. For example, at full power the duration of the

SB-910 is measured at 1/880 second, but at half power it is 1/1100 second. Using the short burst of light to freeze the action allows you to freeze the action even at longer shutter speeds. This means you can allow some of the ambient light in the scene to be recorded. In **Figure 3.3** the action was frozen by the flash, while the shutter speed was 1/6 of second, which allowed for some of the lights in the city background to appear in the photo.



NIKON D4 ISO 400 1/6 SEC. F/6.3

**Figure 3.3** The short duration of the flash freezes the motion in the image. For this shot, the shutter speed was really slow to allow for some ambient light to show up, but Tim was frozen mid-kick with the flash.

#### Note

When you use a flash, normally your shutter speed cannot be faster than 1/250 (or 1/200 for some



models). This limit is called the sync speed and is because of the way the shutter opens and closes. Chapter 9 covers sync speed and the High Speed Sync mode in more detail.

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The shutter speed also controls how much ambient light is allowed to be recorded in your images. Leaving the shutter open longer allows more ambient light to affect the image, while faster shutter speeds mean less ambient light. By lengthening or shortening the shutter speed, you can better control the existing light in a scene and thereby decide what and how much will be lit in the scene.

**Figures 3.4** and **3.5** have the same exposure, but the longer shutter speed in **Figure 3.5** allows for more of the ambient light in the room to illuminate the background.



NIKON D700 ISO 200 1/250 SEC. F/5.6

**Figure 3.4** Using a fast shutter speed doesn't allow the ambient light to illuminate the setting; all the light in the scene is produced from the flash.

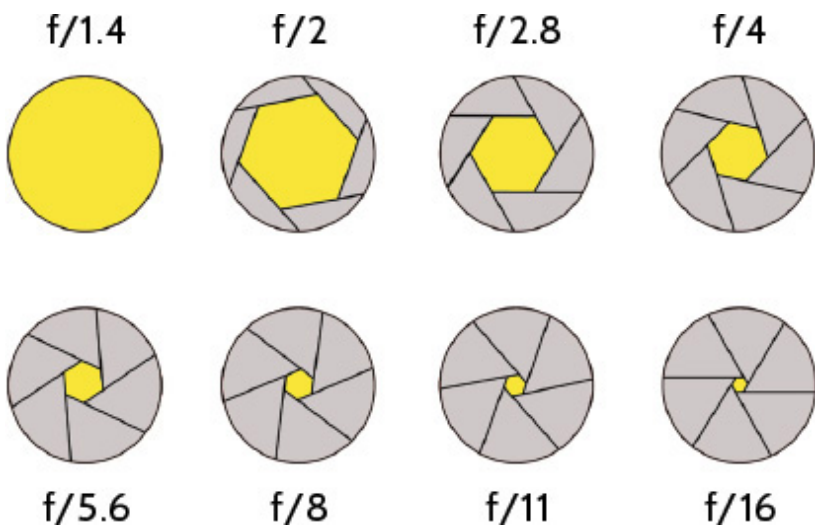


NIKON D700 ISO 200 1/15 SEC. F/5.6

**Figure 3.5** A slower shutter speed allows the ambient light to illuminate the background and can change the whole look and feel of the image.

## Aperture

The aperture setting refers to the *size*, specifically the area, of the opening in the lens through which light can reach the sensor. A bigger opening means more light can reach the sensor over the same amount of time. Aperture is measured in *f-stops*, such as  $f/1.4$ ,  $f/2.8$ ,  $f/4$ , and so on. Because the *f-stop* is a fraction, a smaller number after the *f* means a larger opening. For example,  $f/2.8$  is a larger opening than  $f/5.6$ , and  $f/16$  is a smaller opening than  $f/8$  ( [Figure 3.6](#) ). By controlling the size of the opening in the lens, the aperture also controls the amount of flash that illuminates the subject. Because the duration of the flash is very short, all the illuminating power is discharged during the exposure, so changes in the shutter speed don't really affect how much of the flash's light is able to reach the sensor, but changing the aperture does.



**Figure 3.6** Each of these apertures lets in twice as much light or half as much light as its neighbor.

Finally, the aperture setting also affects the *depth of field* in your image, which is the area that is in acceptable focus. The wider the aperture and therefore the larger the opening, the shallower the resulting depth of field. This gives you incredible control over what is in focus and what is out of focus in your image. For example, using an aperture of f/4 in [Figure 3.7](#) created a very shallow depth of field. The subject is in focus, while the background is not. Using a smaller aperture of f/16 in [Figure 3.8](#) created a deep depth of field with everything in focus.



NIKON D4 ISO 400 1/2000 SEC. F/4

**Figure 3.7** A wide aperture of  $f/4$  produces a shallow depth of field. The subject pops off the background, while the trees in the background are just green blurs.



NIKON D2X ISO 100 1/10 SEC.  $F/16$

**Figure 3.8** Using an aperture of  $f/16$  creates a very deep depth of field. The whole scene is in focus from the rocks in the foreground to the café on the pier.

Remember, the range of  $f$ -stops available is dependent on the *lens* attached to the camera and not on the camera itself. Because the aperture is the physical measurement of the opening in the lens, each lens can have a different maximum aperture. In fact, some zoom lenses can have a different maximum aperture depending on the focal length. This can be a little confusing, so I'll break it down in the next sections.

## Maximum Aperture

The maximum aperture of a lens is the widest it can open and therefore the widest aperture setting you can use with that lens attached to your camera. Lenses that open to a maximum aperture of  $f/4$  or wider are considered *fast* lenses and often called *fast glasses*. Because of the way lenses are constructed, prime lenses (those with a single focal length) can have a larger maximum aperture than zoom lenses (those that have a range of focal lengths). For example, the Nikkor 85mm lens has a maximum aperture of  $f/1.4$  ( [Figure 3.9](#) ), while the Nikkor 24–70mm lens has a maximum aperture of  $f/2.8$ , a difference of two full stops of

light. (See the sidebar “[Understanding Stops](#) .”) The maximum aperture of any lens will be printed on it, usually below the focal length.



**Figure 3.9** The Nikkor 85mm has a maximum aperture of f/1.4. You can see the maximum aperture listed under the focal length right on the lens.

### Constant Aperture Zoom Lenses

The constant aperture zoom lenses have the same aperture



throughout the focal length range of the lens. These lenses are usually larger and more expensive than their variable aperture counterparts. When you change the focal length on these lenses (zoom in or out), the aperture doesn't change. For instance, the Nikkor 24–70mm f/2.8 has a maximum aperture of f/2.8 no matter the focal length you use, while the Nikkor 70–200mm f/4 has a maximum aperture of f/4 no matter the focal length.

## Variable Aperture Zoom Lenses

Some zoom lenses have a different maximum aperture depending on which focal length you use. These lenses are usually less expensive and lighter than the constant aperture versions. As you choose a larger focal length for these lenses, their maximum aperture decreases. The Nikkor 18–300mm f/3.5–5.6 lens, for example, has a focal length range of 18mm to 300mm and a maximum aperture range of f/3.5 to f/5.6. When you use the lens at 18mm, the maximum aperture is f/3.5, but as you zoom in to 300mm, the maximum aperture changes to f/5.6. The Nikkor 80–400 f/4.5–5.6 shown in [Figure 3.10](#), meanwhile, has a maximum aperture of f/4.5 at 80mm and f/5.6 at 400mm. It's not a huge change, but it's enough to throw off your exposure settings as you change focal lengths.



**Figure 3.10** The Nikkor 80–400mm f/4.5–f/5.6 is a versatile lens that covers a huge range of focal lengths, but you do lose 2/3 of a stop of light between the 80mm and 400mm focal lengths.

## ISO

ISO is a standard measurement of how sensitive the sensor acts to light. This measurement is based on how traditional film of different speeds would react to light. Higher-speed film needs less light to create the same exposure as a lower-speed film. In digital cameras, the actual sensitivity of the sensor can't change, so instead, the data that the sensor records is amplified in a controlled manner to simulate film speed. The more that data from the sensor is amplified, the less light is needed. So, the higher the ISO, the more the data is amplified. The downside to this is that at the higher ISOs, digital noise also is introduced into the image as the data is amplified. In early digital cameras this was noticeable, especially at ISO 800 or higher. Over the years cameras have improved, however, and now I routinely shoot at ISO 1600, ISO 3200, and even higher with very little noise. At the very high ISOs, you will not only get some digital noise but also can lose some contrast and color.

## Equivalent Exposures

Not only do your shutter speed, aperture, and ISO settings work together to create your image, different combinations of the three can produce the same overall exposure but very different looks. For example, a photo taken with a fast shutter speed, wide aperture, and low ISO can have the same exposure as a photo taken at with a slow shutter speed, small aperture, and low ISO but may look very different. Consider an analogy: Suppose you need six cups of fruit salad. You could mix two cups each of strawberries, blueberries, and peaches, or you could mix four cups of peaches with one cup each of berry. In both cases, you have six cups of salad, but the look and taste will be very different. This idea of balancing proportions of ingredients (the settings) underlies the concept of equivalent exposures and can give you a lot of creative control over your photographs.

---

### Understanding Stops

The term *stop* describes the change in the amount of light between settings. Whether you're adjusting shutter speeds (time), aperture (area), or ISO (sensitivity), the actual amount of light affected is the same: one stop per setting.

For example, if you double the shutter speed from



1/30 second to 1/60 second, it halves the amount of light allowed to reach the sensor. If you halve the shutter speed, say from 1/500 to 1/250 second, then the amount of light that reaches the sensor doubles. Each full-stop change in the shutter speed allows either half or twice as much light in compared to the previous setting. In one-stop increments, the full range of shutter speeds is as follows:

1/8000 sec., 1/4000 sec., 1/2000 sec., 1/1000 sec., 1/500 sec., 1/250 sec., 1/125 sec., 1/60 sec., 1/30 sec., 1/15 sec., 1/8 sec., 1/4 sec., 1/2 sec., 1 sec., 2 sec., 4, sec., 8, sec., 15 sec., 30 sec.

Each time you move from a faster shutter speed to a slower shutter speed, the amount of light allowed is increased, while every time you go from a slower shutter speed to a faster one, the amount of light is decreased.

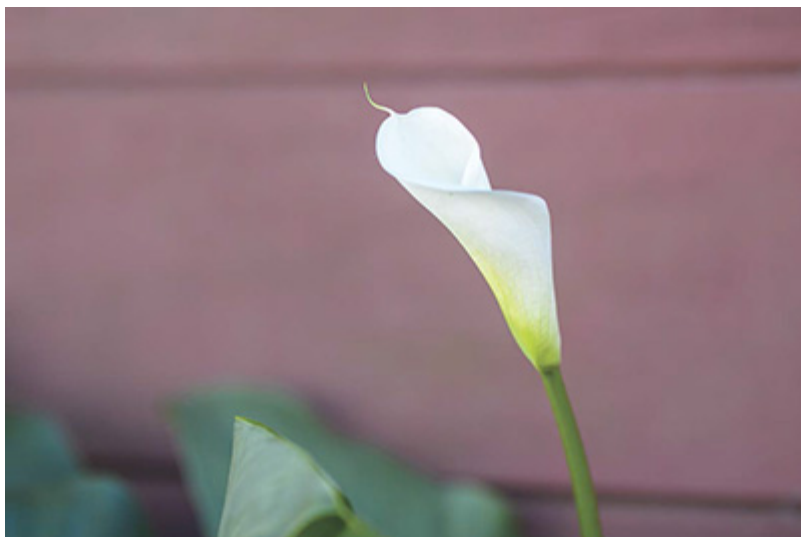
The same concept holds true for the aperture. Every time you double the size of the opening, you double the amount of light allowed through the lens. If you halve the aperture, you also halve the amount of light allowed through the lens. For example, if you change the aperture from f/2.8 to f/4, exactly half as much light is allowed through the lens. When you change from f/8.0 to f/5.6, you are letting in double the amount of light. Each of these changes is also called a *stop of light*.

Finally, each time you double or halve the ISO, you effectively make the sensor more or less sensitive to light by exactly one stop. So if you are shooting at ISO 400 and then change to ISO 800, the camera becomes one stop more sensitive to the light reaching the sensor, meaning you need exactly half as much light as you did when using ISO 400.

Because one stop of light is the same for all three settings, you can balance your settings to the best effect. If you use a faster shutter speed and a wider aperture, for example, you can counter the loss of light from the change in shutter speed with more light coming in through the wider aperture. This

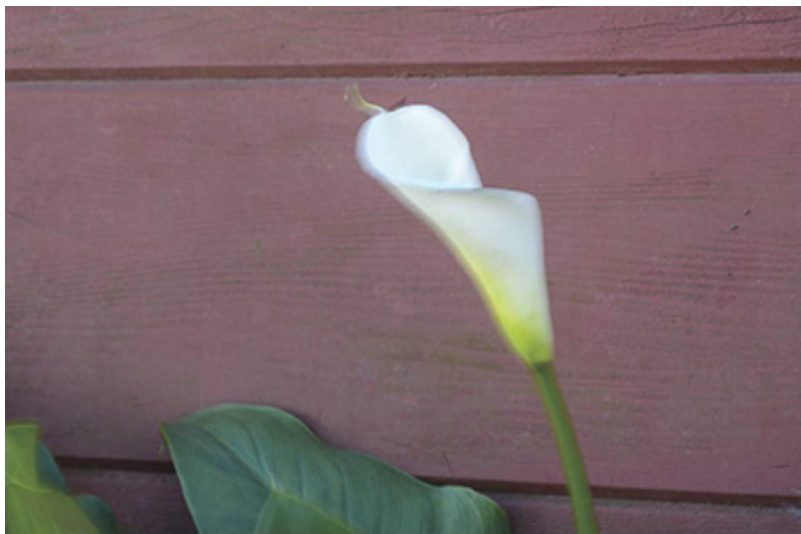
enables you to use equivalent exposures to control the creative side of your images.

For example, [Figures 3.11](#) through [3.13](#) all feature the same scene captured with the same exposure, yet each has a unique look because different settings combinations derived that exposure. I used Aperture Priority mode (more on this shortly) with Matrix Metering for each image, allowing me to set the aperture, while the camera set the shutter speed and determined the proper exposure. For [Figure 3.11](#), I adjusted the aperture to f/1.8 to achieve that very shallow depth of field that makes the subject pop right off the background; the shutter speed was high (1/1000 sec) to freeze any little motion, and the ISO was 200. By comparison, [Figure 3.12](#) was shot with a very deep aperture (f/16) balanced by a very slow shutter speed (1/13 sec.) and an ISO of 200. The subject is blurred because of small movements during the exposure, but the depth of field is deep. [Figure 3.13](#) combines an increased ISO of 1600, an aperture of f/8, and a faster shutter speed (1/400 sec.) to freeze the subject while creating enough depth of field to keep both the subject and the background in acceptable focus.



NIKON D4 ISO 200 1/1000 SEC. F/1.8

**Figure 3.11** With an aperture of f/1.8 and fast shutter speed, the background is out of focus, and the flower really stands out.



NIKON D4 ISO 200 1/13 SEC. F/16

**Figure 3.12** An aperture of f/16 created a very deep depth of field, but the shutter speed (1/13 sec.) is too low to freeze the slight movement of the flower.



NIKON D4 ISO 1600 1/400 SEC. F/8

**Figure 3.13** Increasing the ISO to 1600 allowed for a relatively deep depth of field and a shutter speed fast enough to freeze the action.

Because the camera set the overall exposure for all three images, the photos all have the same level of details in both their light and dark areas. Their different looks are the result of how the individual settings balance within the exposure. Using equivalent

exposures, you can tailor how your scene is captured to how you envision it.

## Exposure Modes

Every Nikon camera features four basic exposure modes on every camera: Program Auto (P), Shutter Speed Priority (S), Aperture Priority (A), and Manual (M). These modes determine how the shutter speed and aperture (as well as ISO in some cases) are set. The exposure mode uses the built-in light meter reading and the metering mode to choose the settings that will give you what the camera believes will result in a proper exposure. Take a closer look at the four modes.

- **Program Auto (P ):** In this mode, the camera picks the shutter speed and the aperture based on the built-in light meter readings. The camera tries to balance the shutter speed with the aperture resulting in settings that usually give you a properly exposed image. The issue is that the camera doesn't actually know what it is you are photographing and can use a shutter speed that is too slow to freeze the action or an aperture that gives you a too deep depth of field. Unlike with a completely auto mode, you can adjust the shutter or aperture in Program Auto mode; the camera will adjust the other settings to ensure your exposure is still correct. For example, if you raise the camera to your eye and see that the camera has picked 1/250 second and f/5.6 for the exposure settings, you can then adjust that by increasing the shutter speed, and the camera will automatically use a wider aperture. So if you change the shutter speed to 1/500 second, a full stop of light, the aperture will change from f/5.6 to f/4.0.
- **Shutter Speed Priority (S ):** In this mode, you set the shutter speed, and the camera sets the aperture based on the built-in light meter reading and the metering mode. This mode is a good choice when you want to make sure that the camera uses a specific shutter speed.
- **Aperture Priority (A ):** In this mode, you set the aperture, and the camera sets the shutter speed based on the built-in light meter reading and the metering mode. This mode is best when you want to keep control over the depth of field in the image.
- **Manual (M ):** In this mode, you set the shutter speed and

the aperture, giving you complete control over the exposure. The camera still reads the light in the scene and shows you what it believes is the correct exposure, but it doesn't actually do anything. I use this mode when photographing events that have rapidly changing lights, especially in the background. For example, when I photograph concerts, I don't want the camera to keep changing the exposure every time the background lights change, which it will do on any of the other settings. The downside is that you need to use this mode with care because you can easily over- or underexpose your images.

How you set the exposure mode depends on the camera; on the D4, for instance, you push a button and use the command dials, but you simply turn a knob on the D750 ( [Figure 3.14](#) ).



**Figure 3.14** To set the exposure mode on the Nikon D750, press the button in the middle of the mode dial and rotate the dial to the desired setting.

Some cameras will also adjust the ISO automatically depending on the exposure mode. To take advantage of this, set the ISO to the Auto ISO setting in the camera's menu system. The drawback with the Auto ISO is that the camera doesn't know or care about what it is you are photographing. The camera might pick a higher ISO over a lower shutter speed, producing an image that is full of digital noise. The advantage to using Auto ISO is that you can set the shutter speed and aperture and then let the camera pick the ISO in the changing light. This keeps the same depth of field and motion in the image while still allowing the camera to control the exposure.

## Exposure Compensation

What if you and your camera don't agree on the best exposure for an image? The Exposure Compensation feature enables you to fine-tune your exposure by telling the camera to use settings that purposely under- or overexpose the image by adjusting the recommended exposure. To understand how this works, you first need to know a bit about how your camera determines the proper exposure and communicates that information to you.

### Exposure Values

According to your camera, a proper exposure is when enough light reaches the sensor so that a scene is rendered with detail in the lightest and the darkest parts of the image without turning the bright parts pure white (from too much light) or the dark parts pure black (from too little). As discussed in [Chapter 2](#), your camera uses the data from the built-in light meter and averages out the bright and dark parts to determine what it thinks will create the proper exposure. The camera then gives this an *exposure value* (EV) of 0 and highlights this value on the EV graph that is visible across the bottom of your viewfinder ( [Figure 3.15](#) ) or on its right side, depending on the camera model. As you can see, the EV graph shows 0 in the middle, with – at one extreme and + at the other, while the small squares indicate one stop. Highlights on the – side of the chart indicate the current setting will underexpose the image. For example, the camera in [Figure 3.16](#) is set to underexpose the image by one stop, so the shot's EV is –1. The camera in [Figure 3.17](#) is set to overexpose the image by one stop, so that shot's EV is +1.

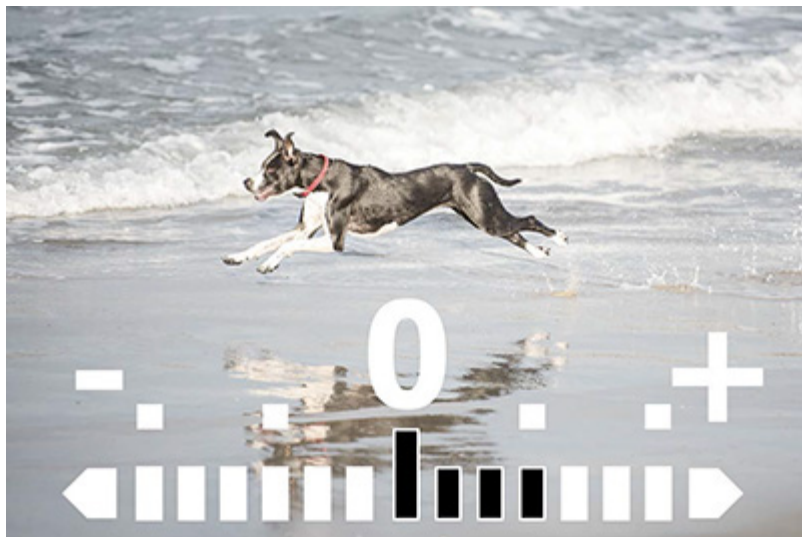


**Figure 3.15** The proper exposure according to the camera has an EV value of 0, which is highlighted in the EV graph.



**Figure 3.16** In this image, the EV value is  $-1$ , which means the image is underexposed by one stop as is highlighted on the EV graph.





**Figure 3.17** When an image is overexposed, the EV value is on the plus side, in this case EV +1.

When you use Program Auto, Shutter Speed Priority, or Aperture Priority mode, the camera will use settings that produce an EV 0 reading. When you shoot in Manual mode, the camera won't control the exposure, but it will display how your exposure compares to what it thinks is optimal via the EV graph.

### Adjusting Exposure Compensation

On the Nikon camera line, the Exposure Compensation button is marked with +/- ( [Figure 3.18](#) ). When you press the Exposure Compensation button and rotate the command dial to the plus side, the exposure becomes brighter. Conversely, when you dial the exposure compensation to the negative side, the exposure gets darker.



**Figure 3.18** To adjust the exposure on the Nikon D750, press the Exposure Compensation button and rotate the rear command dial.

To make the darker areas of [Figure 3.19](#) closer to black, I dialed in a -1 Exposure Compensation to make the image slightly darker.



NIKON D4 ISO 400 1/250 SEC. F/16

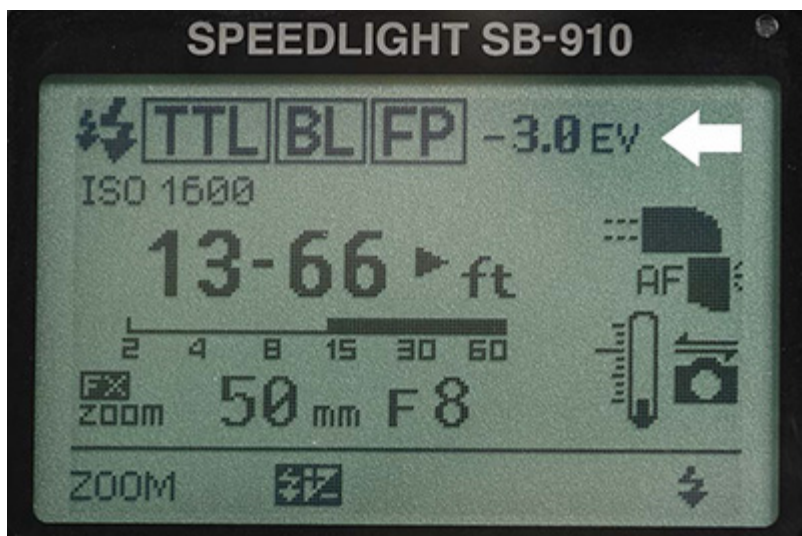
**Figure 3.19** The large dark areas in the image had the camera using settings that made the image too bright, so I used a -1 Exposure Compensation setting to make the image darker and more true to the actual scene.

Exposure Compensation doesn't really do anything fancy; it just adjusts the shutter speed or aperture for you. When your camera is in Shutter Priority mode and you use Exposure Compensation, the camera makes the aperture bigger to let in more light (brighter images) or smaller to let in less light (darker image). Keep in mind that the changing the aperture also changes the depth of field. When your camera is in Aperture Priority mode, Exposure Compensation causes the camera to adjust the shutter speed instead. Twisting the dial in the positive direction means the camera will use a slower shutter speed, admitting more light for a brighter image. When you use a negative exposure compensation setting, the camera uses a faster shutter speed, allowing in less light for a darker photo.

## Flash Compensation

The term *flash compensation* is a fancy way to describe the power output of the flash. In the Nikon Creative Lighting System, the camera and the flash communicate with each other to create the best possible image. After measuring the information it sees through the lens, the camera tells the flash how much light to output to create a properly exposed image. If you don't agree with their assessment, you can adjust the flash output with the Flash

Compensation setting. Like the Exposure Compensation dial, adjusting the Flash Compensation control to the negative means the flash produces less light, and adjusting it to the positive means the flash produces more light. This capability also comes in play when you use the Advanced Wireless Lighting components of the Creative Lighting System. When you control the mode and power of the remote flashes, you can set them to use the Through The Lens (TTL) information and then adjust the output using Flash Compensation settings from -3 to +3 ( [Figure 3.20](#) ).



**Figure 3.20** The LCD on this SB-910 shows -3 set for the Flash Compensation.

You can easily adjust the Flash Compensation right on most Speedlights. Each model is slightly different, so here are the basics for setting Flash Compensation when the flash is mounted on the camera and set to TTL mode:

- **SB-600** : Press the + button to increase the flash output and press the - button to decrease the flash output. In the top right of the LCD, you will see the Flash Compensation readout change as you adjust the output.
- **SB-700** : Press the SEL button (it has the Flash Compensation icon above it on the screen) and then rotate the dial to the right to increase flash output and to the left to decrease the flash output.
- **SB-800** : Press the + button to increase the flash output and press the - button to decrease the flash output.
- **SB-900 / SB-910** : Press the Flash Compensation button

(the middle function button notated by the Flash Compensation icon above it on the screen) and then rotate the dial to the right to increase the flash output and to the left to decrease the flash output. You can change the Flash Compensation from  $-3$  to  $+3$  in  $1/3$  steps.

The SB-300, SB-400, and SB-500 don't include any way to adjust the Flash Compensation on the Speedlight unit itself, but that doesn't mean it can't be done. You need to set the power of the flash in the camera. As you can see in [Figure 3.21](#), to set the power of the SB-500 when it is attached to the Nikon D750, you need to adjust it in the e3 menu. Set the external flash to Manual and then pick the power setting you want. Check your camera manual for the external flash menu.



**Figure 3.21** The e4 menu on the D750 controls the power of the flash.

## Exposure Compensation with Flash Compensation

Nikon cameras combine Exposure Compensation and Flash Compensation differently depending on the model. Knowing which method your camera uses will help you get the results you're after.

In older Nikon cameras, the Exposure Compensation and Flash Compensation settings were tied together. When you adjusted the Exposure Compensation, the Flash Compensation went along for the ride. For example, if you dialed in  $-1.5$  to underexpose the ambient light in the scene, the power from the flash was reduced by 1.5 stops as well. So if you dialed in  $-3$  for Exposure

Compensation and then +3 for Flash Compensation, you were right back at the starting exposure. This is how it still works for most of the Nikon cameras.

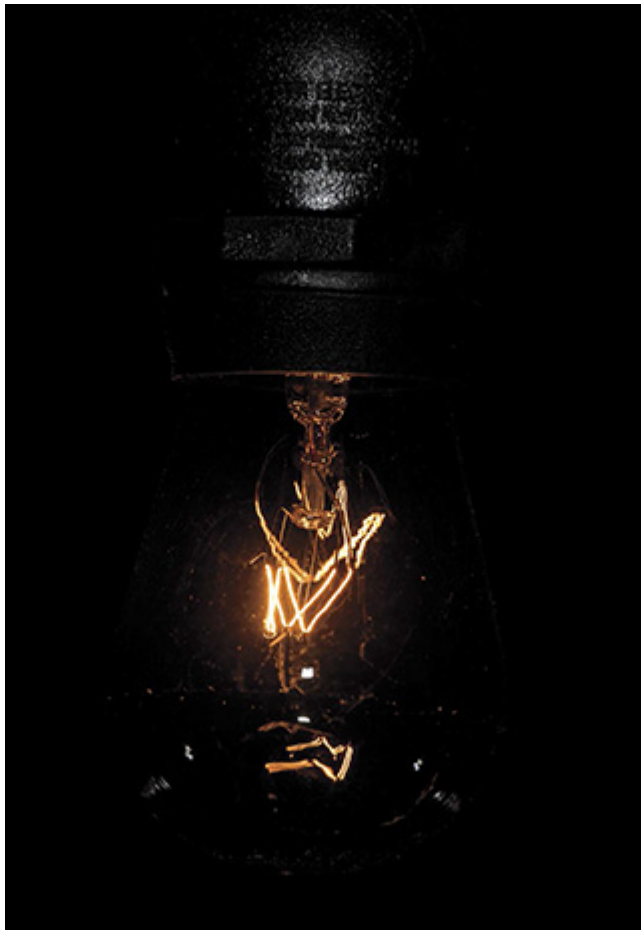
In the newer D4, D4S, D610, D750, D800, and D810 cameras, Nikon has separated the Exposure Compensation and Flash Compensation, enabling you to decide whether you want the two connected ( **Figure 3.22** ). You make your choice in the menu system where you specify the Entire Frame option, which ties both compensation settings together, or the Background Only option, which keeps the Exposure Compensation and Flash Compensation independent.



**Figure 3.22** The e4 menu on the Nikon D750 shows the choices for linking or separating the Exposure Compensation and Flash Compensation.

For comparison, **Figures 3.23** and **3.24** were both taken with the Exposure Compensation set to -4, and their Flash Compensation was set at +3 in **Figure 3.23** and 0 in **Figure 3.24** . In **Figure 3.23** the compensation settings were linked, while in **Figure 3.24** the Flash Compensation was adjusted separately from the Exposure Compensation. You can see a huge difference in the way the image is illuminated. In the first image, the flash was not able to compensate for the -4 Exposure Compensation even while using full power, while in **Figure 3.24** , the flash had plenty of power to illuminate the light bulb even at a setting of 0.





NIKON D750 ISO 200 1/250 SEC. F/16

**Figure 3.23** With the Exposure Compensation of  $-4$  stops and the Exposure Compensation linked to the whole image, the photo is underexposed. Even the flash firing at the full power of  $+3$  doesn't counteract the  $-4$  Exposure Compensation.





NIKON D750 ISO 200 1/250 SEC. F/16

**Figure 3.24** With the Exposure Compensation and the Flash Compensation set to work independently, the subject of the photo is properly lit even while the background is dark and when using an Exposure Compensation setting of  $-4$ .

## Final Thoughts

A proper exposure is important but not as important as an exposure that gets your point across. Not every image needs to have details in the light or dark areas; many times you will want to purposely underexpose or overexpose an image. Once you understand how the exposure is controlled with your camera, lens, and flash combination, you can decide exactly how to render your vision.

## II: Gear



The Nikon creative lighting system consists of two parts: the camera and the Speedlights. This section covers both, detailing the cameras and their settings as well as the features of all current and older Speedlights that are CLS compatible.

This section also covers batteries, battery packs, Through The Lens (TTL) cords, and the Nikon close-up kit. Finally, you'll learn about a variety of light modifiers and the different ways you can position your flash off the camera.

**CHAPTER 4 The Camera**

**CHAPTER 5 Lighting in Your Pocket**

**CHAPTER 6 Making the Most of Those Cool Extras**

**CHAPTER 7 Light Modifiers for Small-Flash Photography**

**CHAPTER 8 Hold on to Your Flash**

## 4. The Camera



The Nikon Creative Lighting System (CLS) works when a Nikon Speedlight is paired with a Nikon DSLR. The Creative Lighting System works with the camera to create better-lit photos when using a flash, either the built-in flash or one of the Nikon Speedlights. A lot of the CLS technology is actually built into the camera, which is why it can use the built-in flash, and some cameras can use these to control off-camera remote flashes, as well. Not all of the Nikon cameras are created equal when it comes to CLS, with the higher-end cameras having some functionality that the entry-level cameras don't. The good news is that all the cameras have the intelligent Through The Lens (i-TTL) mode that tries to create a more natural and balanced light when you use the flash. This chapter takes a closer look at the Nikon line of cameras and which CLS functions each supports.

### **Creative Lighting System Compatibility**

The Creative Lighting System was introduced back in 2004 with the SB-800 Speedlight. Although its off-camera flash control, called Advanced Wireless Lighting (AWL), had the most wow factor, the Creative Lighting System offered much more. Beyond the Advanced Wireless Lighting, the CLS incorporated a variety of functions, consisting of i-TTL Flash Control, FV Lock, Auto FP High-Speed Sync, Wide-Area AF-Assist Illuminator, and Flash Color Information Communication. (For a detailed description of all

these functions, see [Chapter 9](#) .)

Not every camera in the Nikon lineup has all of the CLS functionality, and as new cameras are released, new functions are being added. For example, the new SB-500 Speedlight can be used as a Commander in the AWL when paired with the newer DSLR cameras, specifically the Nikon D750, D810, D5500, and D7200.

The following sections detail all of the currently available and older Nikon cameras that are compatible with the Nikon Creative Lighting System, as well as what each camera can and can't do. To organize the discussion, I divided the camera models into three groups: top-end professional cameras, enthusiast cameras, and entry-level cameras. If you need more information than this survey offers, please check the manual that came with your camera.

## Professional Cameras

The top Nikon professional-level cameras all have one thing in common: They do not have a built-in flash. The good people at Nikon seem to believe that if you are using one of these cameras, you will also be using a Speedlight as a flash and will never use a built-in flash to illuminate the scene. The top-of-line DSLR cameras are designated by a D followed by a single number and an optional X, S, H, or, in one case, an HS.

The D2H, D2X, D2HS, and D2XS were the first of the Nikon camera bodies to incorporate CLS when used with the SB-800 Speedlight. The CLS functions—i-TTL Flash Control, FV Lock, Auto FP High-Speed Sync, Wide-Area AF-Assist Illuminator, Flash Color Information Communication, and Advanced Wireless Lighting—were all available right from the start with these cameras when used with the then new SB-800. The D2H was introduced in 2003 ( [Figure 4.1](#) ), with the D2X in 2004, the D2HS in 2005, and the D2XS in 2006. The D2 line of cameras still used the smaller cropped DX sensor.



**Figure 4.1** The Nikon D2H doesn't have a built-in flash, so it needs a Speedlight, such as the SB-800 attached here, to do any flash photography. Keep in mind that you need at least two units to do any off-camera flash work.

The D2 line of professional DSLR camera bodies was followed up

with the D3, D3X, and D3S cameras. The D3 was the first Nikon with a full-frame sensor and the first designated by the FX label. These camera bodies also had the full CLS functions, including i-TTL Flash Control, FV Lock, Auto FP High-Speed Sync, Wide-Area AF-Assist Illuminator, Flash Color Information Communication, and Advanced Wireless Lighting.

The D4 and D4S followed the D3 line and continued to support all the CLS functions ( **Figure 4.2** ). As with all the cameras in this professional line, the D4 models lacked a built-in flash. For the Advanced Wireless Lighting to work with them, you need a Speedlight, such as the SB-910, SB-900, SB-800, or SB-700, which can act as either Commander or remote; the SU-800, which offers Commander options; or the SB-500, SB-600, or SB-R200, which can act only as remotes.



**Figure 4.2** The D4 with the SB-910 as a Commander can trigger an unlimited number of off-camera remote flashes in three groups: A, B, and C.

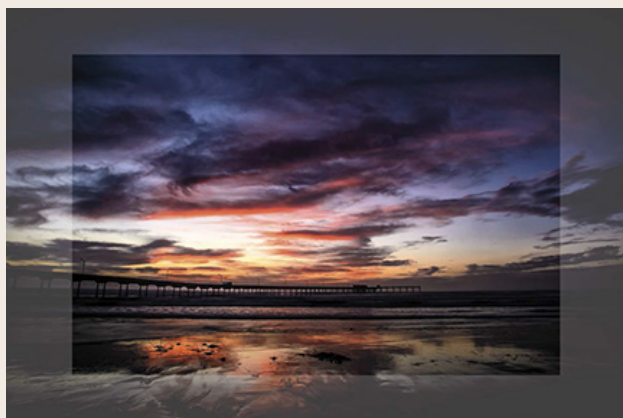
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#### **Full Frame (FX) and Cropped Frame (DX)**

Sensor size divides the Nikon DSLR camera line into two categories: the FX format for models with full-frame sensors and the DX format for models with cropped sensors.



Why is sensor size important? The sensor size can affect the focal length at which a lens is effective and, therefore, what the Speedlight needs to illuminate. The smaller DX sensor records less of the scene than the FX sensor at the same focal length, meaning a Speedlight doesn't need as wide an illumination pattern when used with a DX camera. As you can see in [Figure 4.3](#), the difference between the full-frame (FX) and cropped sensor (DX) is quite significant.



**Figure 4.3** A DX sensor can record the area inside the shaded border, while an FX sensor can record the whole image.

When you use camera with a DX sensor, it will seem as if all your lenses have a longer focal length by a factor of 1.5. For example, a 50mm lens will seem to capture the scene as if it were a 75mm lens. This can be great if you are using a longer focal length and trying to get in close to your subject but not so great on the wide-angle side.

The good news when using a flash is that the Nikon Speedlights automatically adjust depending on which type of sensor is in the camera. So when you mount the Speedlight on an FX camera like the D750, the flash knows to use a wider pattern. When the same flash is mounted on the DX camera, it automatically adjusts for the smaller sensor. For example, the SB-910 Speedlight has coverage from 8 to 11mm on a DX format camera with the built-in wide-angle panel deployed. When mounted on a

camera with an FX format sensor, the coverage changes to 12 to 17mm. In addition, you can set Nikon's FX cameras to just use a portion of the sensor so that they act like a DX camera. When you do, the Speedlight automatically adjusts to use the DX lighting pattern.

## Enthusiast Cameras

The biggest group, enthusiast cameras, could easily be broken down into smaller categories. For this book, I'll focus on models that have one thing in common: They have a built-in flash that you can use to control remote flashes using the Advanced Wireless Lighting functions built into CLS. Many of these cameras, such as the D800 and D810, are really much more suited to professional photographers than to casual photographers, but even with their large megapixel full-frame sensors they still come with a built-in flash, lumping them into the enthusiast group here ( [Figure 4.4](#) ).



**Figure 4.4** The D750 has all the CLS functionality of the professional-level cameras, but its built-in flash allows you to control an unlimited number of flashes in two groups: A and B.

For instance, the following cameras are all full-frame sensor (FX) cameras:

- **D810** : The Nikon D810 is the follow-up to the D800 and D800E camera bodies, and like its predecessors, it has all the CLS functions: i-TTL Flash Control, FV Lock, Auto FP

High-Speed Sync, Wide-Area AF-Assist Illuminator, Flash Color Information Communication, and Advanced Wireless Lighting. For the Advanced Wireless Lighting to work, you can use the built-in flash as a Commander or can use the following Speedlights: the SB-910, SB-900, SB-800, SB-700, or SB-500, which offer both Commander and Remote options; the SU-800, which offers Commander options; or the SB-600 or SB-R200, which can act as remotes only. There is also a specialized D810A model that is built specifically for deep-sky astrophotography with all the CLS abilities of the D810.

- **D800 and D800E** : The Nikon D800 and D800E are 36.3-megapixel cameras released in 2012 and targeted to professional photographers. These cameras have all the CLS functions: i-TTL Flash Control, FV Lock, Auto FP High-Speed Sync, Wide-Area AF-Assist Illuminator, Flash Color Information Communication, and Advanced Wireless Lighting. The Advanced Wireless Lighting can use the built-in flash as a Commander or can use the following Speedlights: the SB-910, SB-900, SB-800, or SB-700, which offer both Commander and Remote options; the SU-800, which offers Commander options; or the SB-600, SB-500, or SB-R200, which can act as remotes only.
- **D750** : The Nikon D750, released in 2014, has the following CLS functions: i-TTL Flash Control, FV Lock, Auto FP High-Speed Sync, AF-Assist for multi-area auto-focus, Flash Color Information Communication, LED light Color Information Communication when used with the SB-500, and Advanced Wireless Lighting. The D750, like the D810, D7200, and D5500, can use the SB-500 as a Commander in AWL. It can also use the SB-910, SB-900, SB-800, or SB-700, which offer both Commander and Remote options; the SU-800, which offers Commander options; or the SB-600, SB-500, or SB-R200, which can act as remotes only.
- **D700** : The Nikon D700 was released in 2008 and combined the full-frame sensor from the Nikon D3 in a smaller, less-expensive camera body ( [Figure 4.5](#) ). This camera had all the CLS functionality of the D3 with the added bonus of a built-in flash that can be used to trigger off-camera remote flashes using AWL. The CLS functions on the D700 are i-TTL Flash Control, FV Lock, Auto FP High-Speed Sync, Flash Color Information Communication, and

Advanced Wireless Lighting. It can also use the SB-910, SB-900, SB-800, or SB-700, which offer both Commander and Remote options; the SU-800, which offers Commander options; or the SB-600, SB-500, or SB-R200, which can act as remotes only.



**Figure 4.5** The D700 menu shows that you can use the built-in flash to control two groups of remote flashes.

- **D610 and D600 :** The Nikon D600 and the updated D610 have the following CLS functions: i-TTL Flash Control, FV Lock, Auto FP High-Speed Sync, AF-Assist for multi-area auto-focus, Flash Color Information Communication, and Advanced Wireless Lighting. For the Advanced Wireless Lighting to work, you need a Speedlight, such as the SB-910, SB-900, SB-800, or SB-700, which offer both Commander and Remote options; the SU-800, which offers Commander options; or the SB-600, SB-500, or SB-R200, which can act as remotes only. You can also use the built-in flash as a Commander to trigger the off-camera flashes in AWL.

The following cameras use the smaller DX sensor size. Many of these cameras have the same or even more features than the professional line. For example, the newer D7200 allows you to use the SB-500 as a Commander unit where none of the professional cameras can. Plus, you can use the built-in flashes of these models to trigger remote flashes in the AWL. Take a closer look at all the features they offer:

- **D300S and D300** : The Nikon D300 and updated D300S both have the following CLS functionality: i-TTL Flash Control, FV Lock, Auto FP High-Speed Sync, Flash Color Information Communication, and Advanced Wireless Lighting. When using the D300 or the D300S in AWL, you can use the built-in flash as a Commander. You can also use a Speedlight such as the SB-910, SB-900, SB-800, or SB-700, which offer both Commander and Remote options; the SU-800, which offers Commander options; or the SB-600, SB-500, or SB-R200, which can act as remotes only.
- **D200** : The Nikon D200 has the following CLS functionality: i-TTL Flash Control, FV Lock, Auto FP High-Speed Sync, and Advanced Wireless Lighting. When using the D200 in the AWL, you can use the built-in flash as a Commander or the SB-910, SB-900, SB-800, or SB-700, which offer both Commander and Remote options; the SU-800, which offers Commander options; or the SB-600, SB-500, or SB-R200, which can act as remotes only.
- **D7200, D7100, and D7000** : The Nikon D7000, D7100, and D7200 have the following CLS functionality: i-TTL Flash Control, FV Lock, Auto FP High-Speed Sync, and Advanced Wireless Lighting. When using the Nikon D7000 and D7100 in the AWL, you can use the built-in flash as a Commander or the SB-910, SB-900, SB-800, or SB-700, which offer both Commander and Remote options; the SU-800, which offers Commander options; or the SB-600, SB-500, or SB-R200, which can act as remotes only. The D7100 also has the ability to automatically detect if a filter is attached to an SB-910, SB-900, or SB-700 that is mounted on the camera and set the White Balance (Flash Color Information Communication). The D7200 can also use the SB-500 as a Commander in the AWL.
- **D90** : The Nikon D90 was the first Nikon DSLR to offer video recording along with still images. It had the full CLS functions list, including i-TTL Flash Control, FV Lock, Auto FP High-Speed Sync, Flash Color Information Communication, and Advanced Wireless Lighting. For the Advanced Wireless Lighting to work, you need a Speedlight such as the SB-910, SB-900, SB-800, or SB-700, which offer both Commander and Remote options; the SU-800, which offers Commander options; or the SB-600, SB-500, or SB-R200, which can act as remotes only. The built-in flash on



the D90 can act as a controller for the Advanced Wireless Control allowing you to control two groups (A and B).

- **D80** : The Nikon D80 supports the Creative Lighting System, including i-TTL Flash Control, FV Lock, and Auto FP High-Speed Sync. With the built-in flash in Commander mode (AWL), you can use the D80 to control remote SB-910, SB-900, SB-800, SB-700, SB-600, SB-500, or SB-R200 flash units. You can also use the SU-800, SB-910, SB-900, or the SB-700 as a Commander on the camera to control remote flashes.
- **D70 and D70S** : When used with a compatible Speedlight, the Nikon D70 supports a range of CLS options including i-TTL Flash Control, Flash Color Information Communication, FV Lock, and Advanced Wireless Lighting. You can use the built-in flash to control SB-910, SB-900, SB-800, SB-700, SB-600, SB-500, or SB-R200 flash units using the Custom Menu 19 setting ( [Figure 4.6](#) ). You can also use the SU-800, SB-910, or SB-900, or you can use the SB-700 as a Commander on the camera to control remote flashes. The built-in flash can trigger only remote flashes that are set to group A and channel 3. The D70 and D70S do not support Auto FP High-Speed Sync.



**Figure 4.6** Custom Menu 19 allows you to set the flash mode for the Nikon D70s to TTL, Manual, or Commander for off-camera flash control.

All these cameras offer photographers a way to trigger an



unlimited number of off-camera flashes in at least two groups (A and B) with the built-in flash. This means that if you had just one Speedlight, you can experiment with off-camera flash without having to spend a whole lot of money.

## Entry-Level Cameras

The cameras in the entry-level category all come with built-in flashes, but that flash cannot be used as a Commander to trigger off-camera remote flashes using AWL. Nor do these models offer a complete menu of Creative Lighting System options because they are missing the FV Lock and the FP High-Speed Sync.

- **D5500, D5300, D5200, D5100, and D5000** : This line of Nikon DSLR camera bodies has reduced CLS functionality. They support the i-TTL Flash Control, Flash Color Information Communication, and Advanced Wireless Control when using the SB-910, SB-900, SB-800, or SB-700, which offer both Commander and Remote options: the SU-800, which offers Commander options, or the SB-600, SB-500, or SB-R200, which can act as remotes only. These cameras do not have the FV Lock or the Auto FP High-Speed Sync. The D5500 can use the SB-500 as a Commander flash in the Advanced Wireless Lighting. The built-in flash on these cameras cannot be used to as a Commander in the Advanced Wireless Lighting.
- **D3300, D3200, D3100, and D3000** : This line of entry-level Nikon DSLR camera bodies offers reduced CLS functionality. They support the i-TTL Flash Control, Flash Color Information Communication, and Advanced Wireless Control when using the SB-910, SB-900, SB-800, or SB-700, which offer both Commander and Remote options; the SU-800, which offers Commander options; or the SB-600, SB-500, or SB-R200, which can act only as remotes. These cameras do not have the FV Lock or the Auto FP High-Speed Sync, nor can their built-in flash be used as a Commander ( [Figure 4.7](#) ).



**Figure 4.7** Although the D3200 has a built-in flash, you need to use an SB-700 (shown), SB-800, SB-900, or SB-910 to be able to

trigger off-camera remote flashes.

- **D60, D50, D40, and D40X** : These older, discontinued entry-level Nikon DSLRs are the most limited in CLS functionality. They support the i-TTL Flash Control and Flash Color Information Communication and allow you to control remote off-camera flashes when using the SB-910, SB-900, SU-800, or SB-700 as a Commander.

## Final Thoughts

I started with Nikon cameras when I still photographed using film. I have used many of the Nikon DSLRs discussed in this chapter—from the entry-level D3200, which I still own, to the Nikon D4 and D750, which are my current go-to cameras for work. Knowing which Creative Lighting System functions your camera supports is important, but knowing which are important to your style of photography is vital. To me, for example, the i-TTL Flash Control and Advanced Wireless Lighting are key, and both are supported by all the cameras when using a Speedlight.

## 5. Lighting in Your Pocket



A flash opens up a whole new world of photographic possibilities. You are no longer dependent on just the ambient light but can now add illumination exactly where and when you want it. Called Speedlights since they were introduced back in the 1960s, the Nikon flashes are compact, powerful, and pretty easy to use right out of the box.

### How a Flash Works

The Nikon Speedlights (in fact, all flashes) are amazing pieces of technology. They produce a bright, consistent flash of light over and over again and yet are small enough to fit in your pocket. They don't need to be plugged into a power source but instead run on regular batteries that can be purchased anywhere.

The four basic components to a flash are the flash tube, a transformer, the capacitor, and a power source. When the flash is turned on the transformer takes the low voltage energy from the power source (AA batteries in the case of most Speedlights), turns it into high voltage energy, and fills the capacitor. When you trigger the Speedlight, the energy in the capacitor is released and fires the flash tube to create a quick, bright, burst of light. When the capacitor is filled again, the flash is ready to fire once more. The recycle time depends on the freshness of the batteries, and how much of the capacitor was drained on the previous flash. The

more power that the flash needs, the longer it takes to recharge the capacitor, the longer you have to wait between flashes, and the quicker you will drain the batteries.

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### Note

There is a lot more on the different types of batteries for use in Speedlights in [Chapter 6](#) .

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Once the capacitor has fully charged, the flash lets you know it is ready to fire by illuminating the ready lamp on the back of the unit. If the flash is mounted on the camera a flash ready indicator through the viewfinder. It is possible to fire the flash before it has a full charge but you don't get the full illumination power if you do.

The true marvel is that you can choose to manually or automatically adjust the amount of energy from the capacitor that is used, thereby changing the power of the flash and the amount of illumination. Put the flash in TTL (Through The Lens) mode to change flash power automatically based on what the camera sees, or use Manual mode to control the output yourself. When the output of the flash is adjusted, the intensity of the flash doesn't actually change, but instead the length of the flash either increases or decreases depending on the power setting. The longer the duration of the flash, the more light is produced.

## Current Speedlight Lineup

The current Nikon Speedlights range from the simple SB-300 all the way to the feature-laden SB-910 ( [Figure 5.1](#) ). Each of the current flashes works with the full line of Nikon DSLRs and many of the Nikon COOLPIX cameras. The way I look at it, the SB-300 is a low-end flash for those who need a just a little extra light right on the camera. This flash does not have any of the wireless controls of the more advanced flashes. The lineup offers a couple of mid-level flashes for those wanting more power, flexibility, and the Advanced Wireless Lighting (AWL) functions. These flashes, the SB-500 and SB-700, cost a little more but allow for greater creative control over your images. Then there is the top-of-the-line flash, the SB-910. This is the unit with all the bells and whistles, the cream of the crop, and the most advanced choice in the Nikon lineup. It also comes with the heftiest price tag and retails for more than twice as much as the midrange units.



**Figure 5.1** The Nikon SB-300, SB-500, SB-700, and SB-910

## SB-300

The SB-300 AF Speedlight is the simplest of the Nikon flashes. Although it can help to add some extra light to your images, it is really quite limited in function, especially compared to the SB-500. The SB-300 has a power switch and a ready lamp on the back, and you can angle the flash head up and down. Limited in its ability, this Speedlight cannot be used off-camera as part of an Advanced Wireless Lighting setup. Because the flash head does not rotate, you can bounce the flash in one direction only. This is the least powerful of the Nikon Speedlights and runs off two AAA batteries. The SB-300 cannot be used as a Commander or a remote for off-camera work.

**Figure 5.2** shows the SB-300's features.



**Figure 5.2** The Nikon SB-300 Speedlight



1. **Flash head** : The flash head contains the flash tube.
2. **Battery chamber cover** : The SB-300 takes two AAA batteries. Sliding the cover toward the base of the flash opens the battery compartment.
3. **Mounting lock pin** : There is a small pin that when extended locks the flash into the hot shoe or the flash stand. The **mounting foot lock (9)** controls the mounting lock pin.
4. **Hot shoe contacts** : These are contacts that pass the information between the flash and camera.
5. **Mouting foot** : This is the metal foot that connects the flash to the hot shoe on the camera or the flash stand.
6. **Flash head tilt scale** : This scale shows the vertical position of the flash head to 120 degrees.
7. **Ready light** : When the flash is ready to fire, this light comes on.
8. **On/Off** : This switch turns the flash on and off.
9. **Mounting foot lock** : This lever locks and unlocks the flash when it is attached to the hot shoe of a camera or on the flash stand.

## SB-500

Released in late 2014, the SB-500 is the newest addition to the Speedlight family, and it has a feature that is unique among all the current Speedlights. Not only does the SB-500 have a regular flash, it also has a built-in, 100-lux LED video light that you can set to three power levels. This is the first, and currently only, Speedlight to have this capability.

The SB-500 can be used as a remote in the AWL mode using the A or B group only using channel 3 and as a Commander only when attached to the Nikon D810 or the Nikon D750. The SB-500 takes two AA batteries and can go through them pretty quickly when using the LED video light.

**Figure 5.3** shows the SB-500's features.



**Figure 5.3 Nikon SB-500 Speedlight**

1. **Flash head** : The flash head contains the flash tube.
2. **LED light** : The LED light is housed in the body of the flash and is not adjustable like the flash head.
3. **Wireless triggering sensor** : The Advanced Wireless Lighting capabilities of the Creative Lighting System use line-of-sight triggering, and this is the sensor on the flash that reads the light from the Commander unit when the SB-500 is in Remote mode. You need to be careful that this sensor is visible to the Commander for the system to work properly.
4. **Battery chamber cover** : The SB-500 takes two AA batteries. Sliding the cover toward the base of the flash opens the battery compartment.
5. **Mounting lock pin** : There is a small pin that when extended locks the flash into the hot shoe or the flash stand. The **mounting foot lock (18)** controls the mounting lock pin.
6. **Hot shoe contacts** : These are contacts that pass the information between the flash and camera.
7. **Mounting foot** : This is the metal foot that connects the flash to the hot shoe on the camera or the flash stand.
8. **Flash head tilt scale** : This scale shows the vertical position of the flash head to 90 degrees.

9. **Flash head rotate scale** : This scale shows the horizontal position of the flash head. It can rotate 180 degrees left or right.
10. **LED power setting button** : Tapping this button cycles through the power settings of the LED. Press and hold the button to turn the LED on and off.
11. **LED power setting indicator** : These lights show the current power setting of the LED lamp.
12. **TTL indicator** : When lit, the flash is in TTL mode.
13. **Manual mode indicator** : When the flash is in Manual mode, this light is lit. The flash can be placed in Manual mode only by selecting Manual in the Optional Flash menu on the camera.
14. **Commander mode indicator** : The SB-500 Speedlight can be used as a Commander when mounted on a Nikon D750 or Nikon D810. When in this mode, the Commander indicator light is illuminated.
15. **Ready light** : When the flash is ready to fire, this lamp is red.
16. **Test fire button** : When the ready light is glowing red, pressing this button fires the flash.
17. **On/Off/LED/Remote** : This switch turns the flash on and sets the mode. You can set it to either regular flash, LED, Group A, or Group B.
18. **Mounting foot lock** : This lever locks and unlocks the flash when it is attached to the hot shoe of a camera or on the flash stand.
19. **Flash stand** : The SB-500 comes with a hard-plastic flash stand that allows the flash to be placed off-camera. The stand has a tripod socket on the bottom allowing the stand to be placed on a tripod or light stand.

The SB-500 comes with a soft case and a Speedlight stand but does not have a diffusion dome or any color-correcting gels. The SB-500 does not have a sync terminal or the ability to use an external power pack. This flash is also noticeably more compact than the SB-700 and SB-910.

The SB-500 works as a TTL flash when attached to the camera. All you have to do is mount it on the camera hot shoe and turn it on. The flash has no real controls, but instead the camera controls the flash mode and power. The only controls on the flash allow you to

change the mode from flash to LED light and then to set the flash into the Remote mode.

## Commander Mode

The Nikon SB-500 can be used as a Commander to control the off-camera remote flashes but only when used with the D810 and D750 camera models. The SB-500 needs to be mounted on the camera hot shoe; then, in the camera menu system, choose Commander mode under the Optional flash setting. You can then set up to two groups in one of four channels. When the SB-500 is in Commander mode, the **Commander mode indicator (14 )** is illuminated.

## Remote Mode

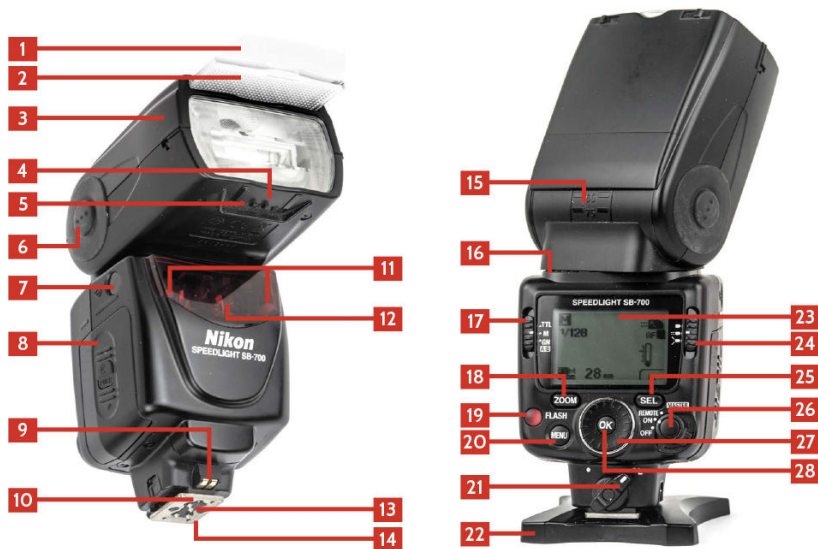
The SB-500 can be used as a remote flash in either the A or B group using channel 3. Setting the flash as a remote unit is easy; all you have to do is rotate the **on/off/LED/remote switch (17 )** to either the A or the B.

## SB-700

The SB-700 was released in 2010 as an update to the SB-600. This Speedlight can act as either a Commander or a remote. When used as a Commander, it can trigger remote Speedlights in two groups, A and B, and when used as a remote can be part of the A, B, or C group. This flash has a convenient slide switch that enables you to change the pattern of the light easily from Standard for general photography to Center-Weighted for portraits or to Even for group shots or lighting interiors. The SB-700 has two hard-plastic color-correcting filters that the flash can read and in turn send the proper white balance information to the camera. The SB-700 also has a built-in bounce card that the SB-600 lacked and comes with a diffusion dome and a stand.

**Figure 5.4** shows the SB-700's features.





**Figure 5.4** The Nikon SB-700 Speedlight

1. **Built-in bounce card** : This built-in white plastic bounce card is meant to bounce a little light when the flash head is not pointed directly at the subject.
2. **Built-in wide flash diffuser** : When this diffuser is pulled out and placed over the flash head, the light from the flash is spread out to cover the area covered by a 14mm focal length. The zoom on the flash is automatically set to 14mm when it is in use.
3. **Flash head** : The flash head contains the flash tube and the mechanism that zooms the flash head. The SB-700 automatically sensors the focal length of the lens attached and adjusts the zoom to match.
4. **Filter detectors** : When the hard-plastic filter is attached to the flash head, the flash can read the filter and set the white balance automatically.
5. **Diffusion dome detector** : The SB-700 can tell when the supplied diffusion dome is attached and automatically adjusts the zoom.
6. **Flash head tilting/rotating lock release button** : Pressing this button allows you to adjust the tilt and rotation of the flash head. The flash head can rotate left or right 180 degrees and can tilt up 90 degrees.
7. **Sensor for wireless triggering** : The Advanced Wireless Lighting capabilities of the Creative Lighting System use

line-of-sight triggering, and this is the sensor on the flash that reads the light from the Commander when in Remote mode. You need to be careful that this sensor is visible to the Commander for the system to work properly.

8. **Battery chamber cover** : The SB-700 takes four AA batteries. Sliding the cover toward the base of the flash opens the battery compartment.
9. **AF-Assist contacts** : These contacts are used to communicate between the flash and camera when the **AF-Assist Illuminator (12)** is needed.
10. **Mounting lock pin** : There is a small pin that when extended locks the flash into the hot shoe or the flash stand. The **mounting foot lock (28)** controls the mounting lock pin.
11. **Remote ready light** : When the SB-700 is in Remote mode, there are two lights that will flash in the front of the flash, letting you know it is ready to fire. The front placement makes it easier to see when the flash is placed off-camera.
12. **AF-Assist Illuminator** : In low-light situations and when the attached DSLR is set to Single-Subject Auto-Focus, the built-in LED projects a red light on your subject to help the camera achieve focus.
13. **Hot shoe contacts** : These are contacts that pass the information between the flash and camera.
14. **Mounting foot** : This is the metal foot that connects the flash to the hot shoe on the camera or the flash stand.
15. **Flash head tilt scale** : This scale shows the vertical position of the flash head from -7 degrees to 90 degrees.
16. **Flash head rotate scale** : This scale shows the horizontal position of the flash head. It can rotate 180 degrees left or right.
17. **Mode switch** : This switch controls which mode the flash is in. Just slide it between TTL, Manual, and GN.
18. **Zoom button** : You can change the zoom of the flash by pressing this button. It cycles through the zoom range of the flash.
19. **Ready light/test button** : This light comes on when the flash is ready to fire. Pressing the button will trigger the flash.



20. **Menu button** : Press the menu button to open the custom setting menu. You can then use the **selector dial (27 )** to choose an item and the **OK button (28 )** to open that setting menu.
21. **Mounting foot lock** : This lever locks and unlocks the flash when it is attached to the hot shoe of a camera or on the flash stand.
22. **Flash stand** : The SB-700 comes with a hard-plastic flash stand that allows the flash to be placed off-camera. The stand has a tripod socket on the bottom allowing the stand to be placed on a tripod or light stand.
23. **LCD screen** : The LCD screen shows the current setting for the flash.
24. **Flash pattern selector switch** : The SB-700 has three different illumination patterns that are set here by sliding the switch up or down. The Standard setting is the basic pattern used for most situations. The Center-Weighted pattern puts more of the flash in the center of the frame and less on the edges. The light falls off quicker than with the Standard setting. The final pattern is the Even setting where the light does not fall off at the edges as much as the Standard or Center-Weighted patterns.
25. **SEL button** : This button allows you to change a selected setting on the flash depending on the mode. Press the SEL button to highlight the setting and then use the **selector dial (27 )** and to adjust the setting and the **OK button (28 )** to confirm it. On the LCD screen there will be an icon above the SEL button depicting what it is currently set to adjust.
26. **On/Off/Remote/Master switch** : This is the power switch that turns the flash on and allows you to easily set the mode from regular flash to Remote or Commander mode. You will need to press the button in the middle of the switch to Remote or Commander mode.
27. **Selector dial** : You can rotate the selector dial to change settings on the flash depending on the current mode.
28. **OK button** : The OK button has two functions. The first is when pressed once to confirm a setting. The second is when you hold the button down for a second, which then opens the custom functions menu.

**Figure 5.5** shows the information on the SB-700's LCD screen.

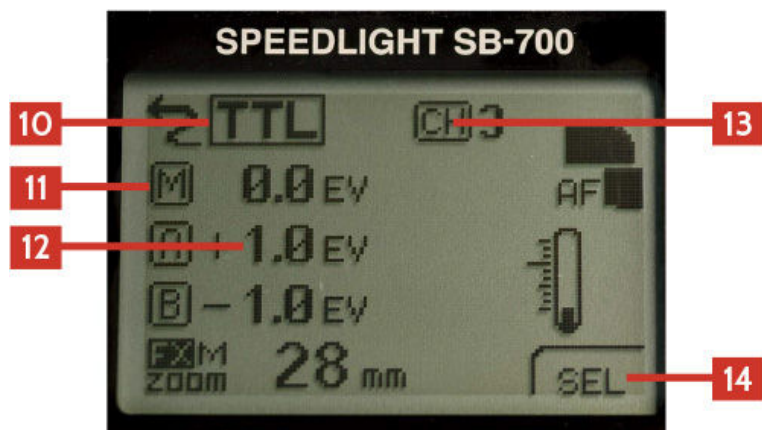
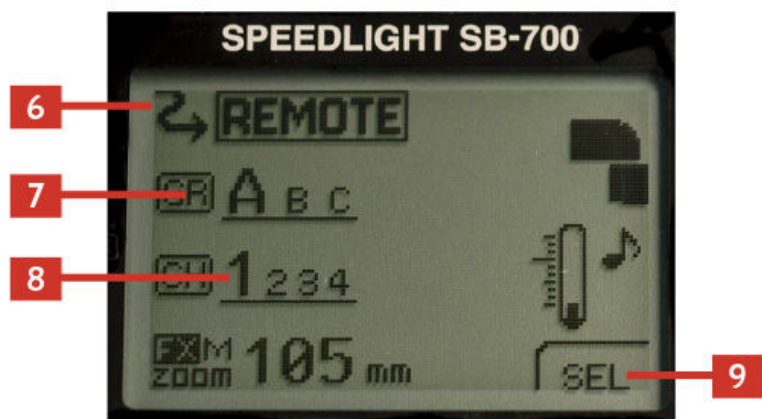
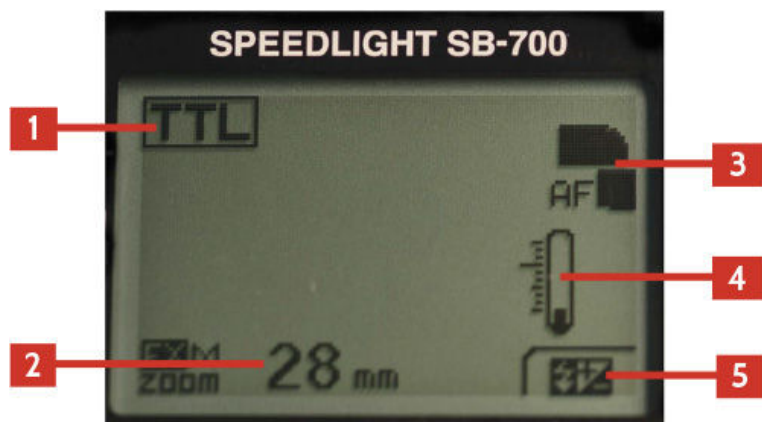


Figure 5.5 Nikon SB-700 Speedlight LCD

1. **Flash mode** : This shows the current setting of the flash. Pressing the Mode button cycles through the modes available on the flash.
2. **Zoom setting** : This shows the current zoom setting of the flash. It will change depending on the lens attached, the focal length, and any diffusers attached.
3. **Flash graphic** : This shows that the **AF-Assist Illuminator (12)** is working, the angle of the flash head, and the pattern of the light.
4. **Temperature gauge** : This shows how hot the flash is getting. If the flash gets too hot, it will shut off automatically.
5. **Label** : This shows the function of the button right below the screen. In normal use, it is set to adjust the flash compensation.
6. **Wireless mode icon** : This arrow icon shows that the flash is in Advanced Wireless mode.
7. **Remote group** : This shows what group the remote is currently set to.
8. **Remote channel** : This shows the current channel the flash is set for.
9. **Label** : This shows the function of the button right below the screen when in Remote mode; here it is set to act as the SEL button.
10. **Master flash mode** : This shows what mode all the remote flashes will use. The mode is changed by the slider switch on the back left of the flash. The mode is set for all the groups at once.
11. **Group icon** : The A and B icons stand for the two groups that the SB-700 can trigger. The M is for the Master flash on the camera.
12. **Group power adjustment** : The power adjustment for each group is shown here, either as a fraction when in Manual mode or as + or – stops of light.
13. **Channel** : This is the channel that the Commander is set to. The remotes need to be on the same channel to work.
14. **Label** : This shows the function of the button right below the screen in Commander mode where it is set to act as the SEL button.

## Commander Mode

The SB-700 can act as a Commander (or Master) flash controlling an unlimited number of remote flash units in two groups, A or B, using one of four channels. To use the SB-700 in Commander mode, just follow these steps:

1. Put the flash on the camera and lock it in place using the mounting foot lock.
2. Turn the power switch to MASTER.
3. Set the mode switch to TTL, Manual, or GN.
4. Press the SEL button to cycle through the channels and groups.
5. When on a group, use the dial to adjust the power for that selected group and then press the SEL button to go to the next one.
6. When the channel is highlighted, use the dial to pick between the four available channels.

Remember that all the remote flashes need to be using the same channel as the Commander and in groups A and B.

## Remote Mode

The SB-700 can be used as a remote for off-camera flash. You can set the SB-700 to the A, B, or C group and use any of the four channels. To use the SB-700 in Remote mode, follow these steps:

1. Turn the power switch to REMOTE.
2. Press the SEL button to switch between the Group mode (GR) and the Channel (CH).
3. When in the Group mode, use the dial to select the A, B, or C group.
4. When in the Channel setting, use the dial to select between channels 1, 2, 3, and 4.

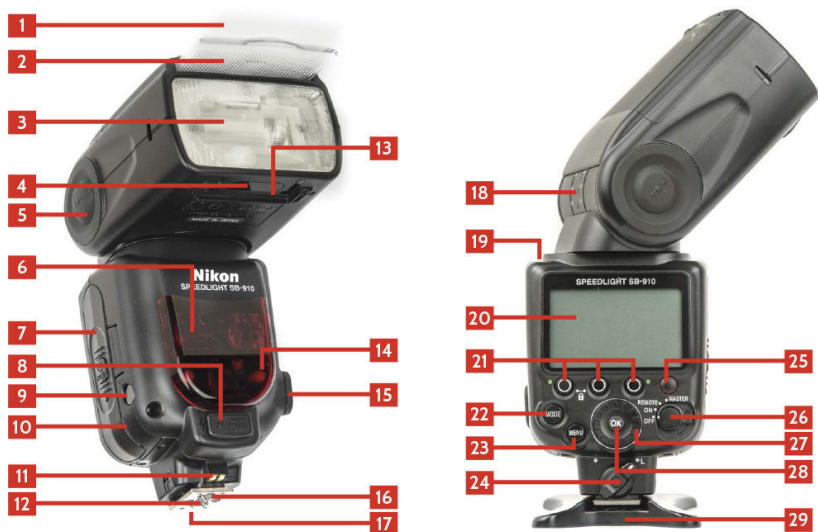
Remember that all the remote flashes need to be using the same channel as the Commander. You also need to make sure that if you are using group C, you are using a Commander that supports group C, such as the SU-800, SB-800, SB-900, or SB-910.

## SB-910

The SB-910 is the current top-of-the-line Speedlight. It is the biggest, most powerful Nikon flash available. The SB-910 is a small

upgrade to the discontinued SB-900, with a few small cosmetic changes including illuminated Function, Mode, and Menu buttons and a reworked thermal cut-off circuit.

**Figure 5.6** shows the SB-910's features.



**Figure 5.6** Nikon SB-910 Speedlight

1. **Built-in bounce card** : This built-in white plastic bounce card is meant to bounce a little light when the flash head is not pointed directly at the subject.
2. **Built-in wide flash diffuser** : When this diffuser is pulled out and placed over the flash head, the light from the flash is spread out to cover the area covered by a 17mm focal length. The zoom on the flash is automatically set to 17mm when it is in use.
3. **Flash head** : The flash head contains the flash tube and the mechanism that zooms the flash head. The SB-910 automatically sensors the focal length of the lens attached and adjusts the zoom to match.
4. **Filter detectors** : When the hard-plastic filter is attached to the flash head, the flash can read the filter and set the white balance automatically
5. **Flash head tilting/rotating lock release button** : Pressing this button allows you to adjust the tilt and rotation of the flash head. The flash head can rotate left or right 180 degrees and can tilt from 90 degrees up to -7 degrees down.
6. **AF-Assist Illuminator** : In low-light situations and when

the attached DSLR is set to Single-Subject Auto-Focus, the built-in LED projects a red light on your subject to help the camera achieve focus.

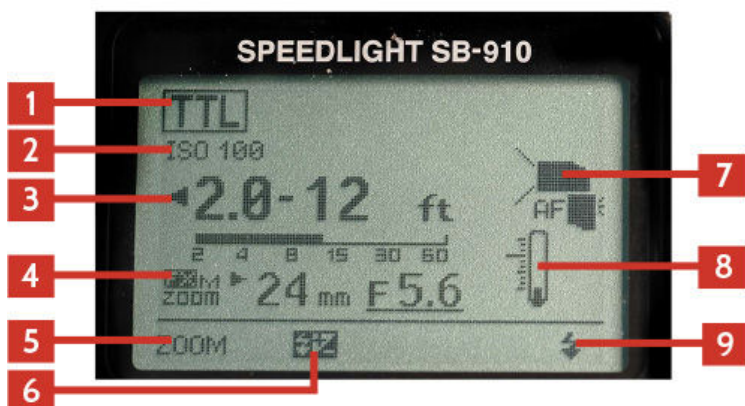
7. **Battery chamber cover** : The SB-910 takes four AA batteries. Sliding the cover toward the base of the flash opens the battery compartment.
8. **External battery terminal** : This port is where the external battery pack (SD-9) plugs into the flash. You need to remove the plastic plug on the flash before you can plug the battery in.
9. **Sensor for wireless triggering** : The Advanced Wireless Lighting capabilities of the Creative Lighting System use line-of-sight triggering, and this is the sensor on the flash that reads the light from the Commander when in Remote mode. You need to be careful that this sensor is visible to the Commander for the system to work properly.
10. **Sensor for non-TTL auto flash** : This sensor allows the flash to read the light being bounced off the subject, allowing the flash to meter the light instead of relying on the TTL information from the camera.
11. **AF-Assist contacts** : These contacts are used to communicate between the flash and camera when the **AF-Assist Illuminator (6 )** is needed.
12. **Hot shoe contacts** : These are contacts that pass the information between the flash and camera.
13. **Diffusion dome detector** : The SB-910 can tell when the supplied diffusion dome is attached and automatically adjusts the zoom.
14. **Remote ready light** : When the SB-910 is in Remote mode, there are two lights that will flash in the front of the flash, letting you know it is ready to fire. The front placement makes it easier to see when the flash is placed off-camera.
15. **Sync terminal** : This port allows you to use a sync cable to fire your flashes.
16. **Mounting lock pin** : There is a small pin that when extended locks the flash into the hot shoe or the flash stand. The **mounting foot lock (28)** controls the mounting lock pin.
17. **Mounting foot** : This is the metal foot that connects the flash to the hot shoe on the camera or the flash stand.

18. **Flash head tilt scale** : This scale shows the vertical position of the flash head from -7 degrees to 90 degrees.
19. **Flash head rotate scale** : This scale shows the horizontal position of the flash head. It can rotate 180 degrees left or right.
20. **LCD** : The LCD screen on the back of the SB-910 shows the currently selected flash functions and gives the function buttons context.
21. **Function buttons** : The SB-910 has three buttons located under the LCD that have different functions depending on the flash mode. Their function is annotated above each button on the LCD screen. From left to right as you look at the back of the flash, these are function buttons 1, 2, and 3.
22. **Mode button** : The Mode button controls which mode the flash is in. Press the button to cycle through the flash modes.
23. **Zoom button** : You can change the zoom of the flash by pressing this button. It cycles through the zoom range of the flash.
24. **Mounting foot lock** : This lever locks and unlocks the flash when it is attached to the hot shoe of a camera or on the flash stand.
25. **Ready light/test button** : This light comes on when the flash is ready to fire. Pressing the button will trigger the flash.
26. **On/Off/Remote/Master switch** : This is the power switch that turns the flash on and allows you to easily set the mode from regular flash to Remote or Commander mode. You will need to press the button in the middle of the switch to Remote or Commander mode.
27. **Selector dial** : You can rotate the selector dial to change settings on the flash depending on the current mode.
28. **OK button** : The OK button has two functions. The first is when pressed once to confirm a setting. The second is when you hold the button down for a second, which then opens the custom functions menu.
29. **Flash stand** : The SB-910 comes with a hard-plastic flash stand that allows the flash to be placed off-camera. The stand has a tripod socket on the bottom allowing the stand to be placed on a tripod or light stand.

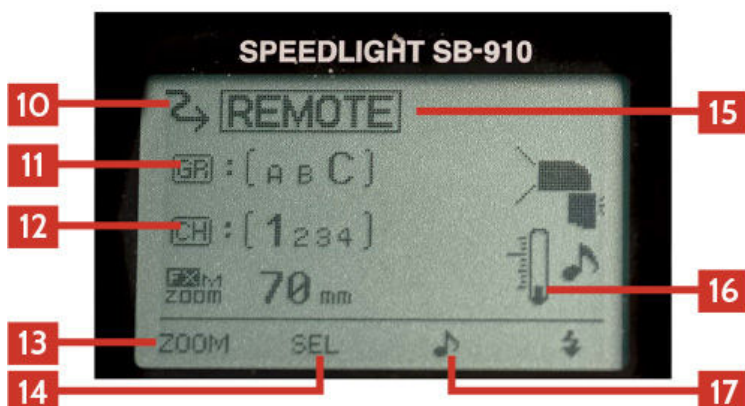


Figure 5.7 shows the information on the SB-910's LCD screen.

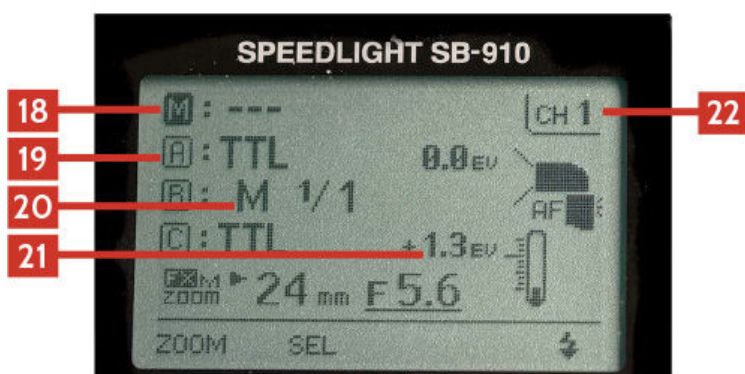
# NORMAL



# REMOTE



# COMMANDER



**Figure 5.7** Nikon SB-910 Speedlight LCD

1. **Flash mode** : This shows the current setting of the flash. Pressing the Mode button cycles through the modes available on the flash.
2. **Camera ISO** : This shows the current ISO of the camera that the flash is attached to.
3. **Effective flash output range** : This shows the effective range of the flash with the current settings.
4. **Zoom setting** : This shows the current zoom setting of the flash. It will change depending on the lens attached, the focal length, and whether any diffusers are attached.
5. **Label 1** : This shows the function of the function button right below the screen. In normal use, it is set to the Zoom button.
6. **Label 2** : This shows the function of the function button right below the screen. In normal use, it is set to flash compensation button.
7. **Flash graphic** : This shows at the AF-Assist Illuminator is working, the angle of the flash head and the pattern of the light.
8. **Temperature gauge** : This shows how hot the flash is getting. If the flash gets too hot, it will shut off automatically.
9. **Label 4** : This shows the function of the Test button right below the screen. It can either test the flash or fire the modeling light function.
10. **Wireless Mode icon** : This arrow icon shows that the flash is in Advanced Wireless mode.
11. **Remote group** : This shows what group the remote is currently set to.
12. **Remote channel** : This shows the current channel the flash is set for.
13. **Label 1** : This shows the function of the function button right below the screen. In Remote use, it is set to the Zoom button.
14. **Label 2** : This shows the function of the function button right below the screen. In Remote mode, it is set to SEL or the select function.

15. **Remote Mode icon** : When in Remote mode, the flash shows the word “REMOTE” across the back.
16. **Sound icon** : The SB-910 can be set to beep when ready to fire in Remote mode. This icon shows that status of sound setting.
17. **Label 3** : This shows the function of the function button right below the screen; in Remote mode, it is set to sound.
18. **Master flash mode** : This shows what mode the SB-910 attached to the camera will use if it is going to add light to the scene. In this example the --- means that the flash will not be adding any light.
19. **Group icon** : The A, B, and C icons stand for the three groups that the SB-910 can trigger.
20. **Group flash mode** : The mode for each group can be different. Here is where you can easily see and adjust the flash modes.
21. **Group power adjustment** : The power adjustment for each group is shown here, either as a fraction when in Manual mode or as + or – stops of light.
22. **Channel** : The channel that the Commander is set to. The remotes need to be on the same channel to work.

## Commander Mode

The SB-910 Speedlight can be used as a Commander unit to control an unlimited number of remote flash units in three groups using one of four channels. To use the SB-910 as a Commander, just follow these steps:

1. Mount the flash on the camera and turn the mounting foot lock to the right to lock the flash on the camera.
2. Turn the flash to Master mode using the power switch.
3. Use the function button 1 to cycle through the A, B, and C groups along with the Master flash.
4. With the selected group highlighted, press the Mode button to select the mode for that group from the following choices:

--- means that the group is turned off and will not fire.

**TTL** sets the group to TTL mode, and the camera will control the power of the flash based on the light that the camera reads in the scene.

**M** is Manual mode, where you control the power of the flash as a fraction.

**A** is Aperture mode.

5. Use function button 2 to select the flash output.
6. Adjust the flash output of the selected group by using the Select dial and then press the OK button.
7. Press function button 2 to select the channel. Pressing the button cycles through the four available channels.

Remember that all the remote flashes need to be using the same channel as the Commander to work.

## **Remote Mode**

The SB-910 can be used as a remote for off-camera flash. The SB-910 can be set to the A, B, or C group and use any of the four channels. To use the SB-900 in Remote mode, follow these steps:

1. Turn the power switch to REMOTE.
2. Press function button 2 to switch between the Group mode (GR) and the channel (CH).
3. When in the Group mode, use the Select dial to select the A, B, or C group.
4. When in the Channel setting, use the Select dial to select between channels 1, 2, 3, and 4.

Remember that all the remote flashes need to be using the same channel as the Commander. You also need to make sure that if you are using group C, you are using a Commander that supports group C, such as the SU-800, SB-800, SB-900, or SB-910.

## **Specialized Speedlights**

There are two specialized Nikon Speedlights, the SB-R200 remote unit and the SU-800 Commander unit. The SB-200 is a small unit meant to be attached to the front of the lens for close-up work and cannot be mounted on the camera hot shoe or used without a separate flash in Commander mode or the SU-800 as a trigger. The SU-800 Commander is a dedicated unit used to trigger off-camera Speedlights in Advanced Wireless Lighting usage.

### **SB-R200 Remote**

The SB-R200 is a specialized Speedlight designed mainly for close-up work. This Speedlight cannot be used alone but instead is used

as a remote unit triggered by either a Speedlight in Commander mode, an SU-800 Commander unit, or a built-in flash set to Commander mode. The SB-R200 doesn't have a standard mounting foot and cannot be mounted on a camera hot shoe. The SB-R200 can be used in the A, B, or C group in one of four channels.

**Figure 5.8** shows the SB-R200's features.



**Figure 5.8** Nikon SB-R200 Speedlight

- 1. Flash head :** The flash head of the SB-R200 is basically the whole body of the flash. The flash head does not zoom.
- 2. Target light :** This light helps you aim the SB-R200. It can be turned on remotely using the SU-800 or the SB-R200 **target light switch (4)**.
- 3. Group dial :** This determines the group to which the SB-R200 is set. Just rotate the dial to change between A, B, and C.
- 4. Channel dial :** This sets the channel that the flash uses to communicate between the Commander and the remote. Turn the dial to pick the channel you want to use, 1, 2, 3, or 4.
- 5. Target light switch :** Pressing this turns the **target light (2)** on or off.
- 6. On/Off button :** Turns the flash on and off.
- 7. TTL cord terminal :** The SB-R200 can be used with older cameras that do not have Creative Lighting System capability by using the SU-800 and the optional TTL SC-30 cord. The cord from the SU-800 plugs in here.
- 8. Mounting foot :** The mounting foot of the SB-R200 is made to attach to the SX-1 attachment ring. Once the flash is mounted, slide the lock into place.
- 9. Foot adjustment release button :** The SB-R200 attaches to the SX-1 attachment ring and not to the camera hot shoe.

The position of the flash can be adjusted by pressing in these buttons and sliding the flash around.

10. **Sensor for wireless control** : This is the sensor that the Commander flash needs to see in order to trigger this unit. The sensor is on the bottom because this is the part that faces the camera when the flash is attached to the front of the lens using the SX-1 attachment ring.
11. **Ready light** : This light illuminates when the flash is ready to fire.
12. **Battery chamber** : The SB-R200 takes one CR123A (3V) lithium battery. Slide the battery chamber cover to the outside of the flash to open.
13. **Stand (not shown)** : The SB-R200 comes with a special stand that allows the flash to be used without the SX-1 attachment ring.

## Remote Mode

The SB-R200 is always in Remote mode and cannot be used any other way. The controls for the flash are on the top, with the power button on the right and two dials on the left. Just set the group with the top dial and the channel with the bottom dial, and the flash is ready to go. The sensor that the Commander flash needs to “see” is located under the flash, perfectly positioned to activate the flash when the SB-R200 is used as part of the Nikon close-up kit, which is covered in [Chapter 6](#) .

## SU-800 Wireless Speedlight Commander

The Nikon SU-800 is a compact unit that uses infrared signals to trigger the remote flashes. The SU-800 does not add any illumination to the scene because it has no flash tube. The advantage to the SU-800 is that it costs a lot less than the SB-910 and has the same ability to act as a Commander for unlimited flashes in groups A, B, and C.

You can reset the SU-800 Commander to the factory defaults by pressing and holding the on/off and mode buttons simultaneously. The LCD panel will blink three times.

[Figure 5.9](#) shows the SU-800’s features.



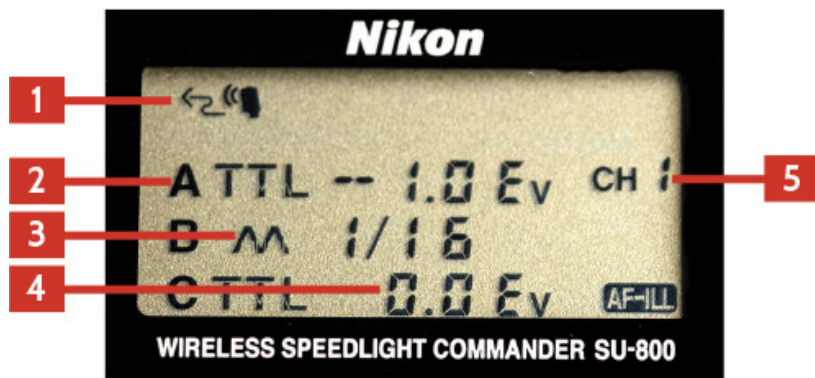
**Figure 5.9** Nikon SU-800 Wireless Speedlight Commander

1. **Commander transmit window** : The infrared transmitter is behind this window.
2. **AF-Assist Illuminator** : In low-light situations and when the attached DSLR is set to Single-Subject Auto-Focus, the built-in LED projects a red light on your subject to help the camera achieve focus.
3. **TTL cord terminal** : You can connect the SU-800 to the SB-R200 using an optional SC-20 TTL cord while using a camera that doesn't support Creative Lighting System.
4. **Battery chamber** : The SU-800 takes one CR123A (3V) lithium battery. Slide the battery chamber cover down toward the mounting foot to open.
5. **Mounting lock pin** : When the **mounting foot lock lever** (17) is turned, this pin locks the SU-800 to the camera so that the unit.
6. **Hot shoe contacts** : These are contacts that pass the information between the flash and camera.
7. **Mounting foot** : This is the metal foot that connects the flash to the hot shoe on the camera or the flash stand.
8. **LCD panel** : This shows the settings used on the SU-800.
9. **Mode button** : When a group is selected, pressing this cycles through the modes that group can be set to.
10. **A-B select button** : When used in Close-Up mode, this button is used to set the units in Groups A and B to fire.
11. **Left and right arrow buttons** : This allows you to navigate the SU-800 menus.
12. **Test fire button** : Pressing this fires any remote flashes.



13. **Ready light** : This comes on when the unit is ready to fire.
14. **On/Off button** : Pressing this button turns the SU-800 on and off.
15. **Select button** : This allows you to set the current settings.
16. **Target light button** : Press this to turn the target light on the SB-R200 on or off when used with the SB-R200.
17. **Mounting foot lock lever** : Turning this lever engages the **mounting lock pin (5)** securing the SU-800 to the camera.

**Figure 5.10** shows the information on the SU-800's LCD screen.



**Figure 5.10** Nikon SU-800 Speedlight LCD

1. **Remote mode icon** : This shows that the SU-800 is in Advanced Wireless mode.
2. **Group icons** : You can control the A, B, or C group from the Commander.
3. **Mode** : This shows which mode the group is set to. Each group can be set to a different mode.
4. **Group power adjustment** : The power adjustment for each group is shown here, either as a fraction when in Manual mode or as + or – stops of light.
5. **Channel** : The channel that the Commander is set to. The remotes need to be on the same channel to work.

## Commander Mode

The SU-800 Commander works in the Commander mode only. Follow these quick steps to get started:

1. Mount the SU-800 on the camera and engage the locking lever.
2. Turn the SU-800 on by pressing the on/off button.

3. Press the SEL button to navigate to Group A, B, and C settings.
4. Press the Mode button to change the mode for the selected group.
5. Press the arrow buttons to adjust the power of the group.
6. Press the SEL to get to the channel and then use the arrow keys to select the channel you want to use.

Make sure the remote flashes are set to the same channel, and you are good to go.

## Older and Discontinued Flashes

Although the older flashes discussed in this section ( [Figure 5.11](#) ) have been discontinued by Nikon, many are still available as used gear and work great. In fact, I continue to use a few of these quite frequently. They all work with the Nikon Creative Lighting System, and just because they are older doesn't make them useless.



**Figure 5.11** The discontinued Nikon Speedlights: SB-600, SB-800, and SB-900

### Note

The only older flash that I don't recommend is the discontinued SB-400. You can't use it as part of the Advanced Wireless Lighting setup nor does the flash head allow for bouncing the light. The SB-400 was designed simply as a more powerful alternative to the built-in flash, and better choices are now on

## SB-600

The SB-600 was released in 2004 and discontinued in 2010 and was the second flash to be part of the Creative Lighting System but was also compatible with the older digital and film cameras. The SB-600 was designed to be used on the camera as a dedicated flash unit or as a remote flash unit triggered by another flash in Commander mode. The SB-600 cannot be used as a controller to trigger remote flashes.

**Figure 5.12** shows the SB-600's features.



**Figure 5.12** Nikon SB-600 Speedlight

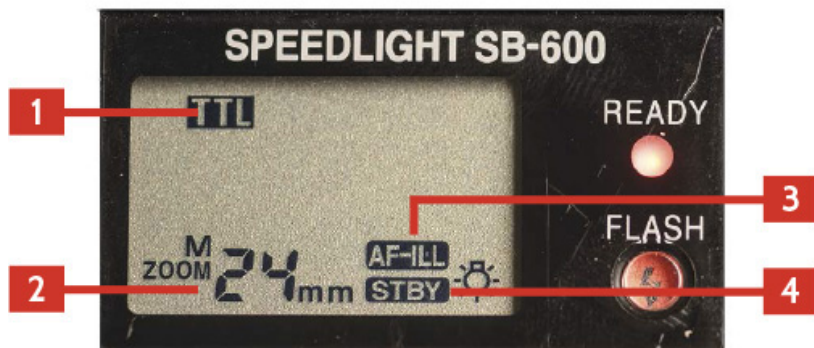
1. **Built-in wide flash diffuser** : When pulled out and placed over the flash head, this diffuser spreads out the light from the flash to cover an area sufficient for a 14mm focal length. The zoom on the flash is automatically set to 14mm when it is in use.
2. **Flash head** : The flash head contains the flash tube and the mechanism that zooms the flash head. The SB-600 automatically sensors the focal length of the lens attached and adjusts the zoom to match.
3. **Flash head tilting/rotating lock release button** : Pressing this button allows you to adjust the tilt and rotation of the flash head. The flash head can rotate left or right 180 degrees and can tilt from 90 degrees up to -7 degrees down.

4. **Battery chamber cover** : The SB-600 takes four AA batteries. Sliding the cover toward the base of the flash opens the battery compartment.
5. **Sensor for wireless triggering** : The Advanced Wireless Lighting capabilities of the Creative Lighting System use line-of-sight triggering, and this is the sensor on the flash that reads the light from the Commander when in Remote mode. You need to be careful that this sensor is visible to the light from the Commander for the system to work properly.
6. **AF-Assist contacts** : These contacts are used to communicate between the flash and camera when the **AF-Assist Illuminator (11)** is needed.
7. **Hot shoe contacts** : These are contacts that pass the information between the flash and camera.
8. **Remote ready light** : When the SB-600 is in Remote mode, there are two lights that will flash in the front of the flash, letting you know it is ready to fire. The front placement makes it easier to see when the flash is placed off-camera.
9. **AF-Assist Illuminator** : In low-light situations and when the attached DSLR is set to Single-Subject Auto-Focus, the built-in LED projects a red light on your subject to help the camera achieve focus.
10. **Mounting lock pin** : There is a small pin that when extended locks the flash into the hot shoe or the flash stand. The **mounting foot lock (21)** controls the mounting lock pin.
11. **Mounting foot** : This is the metal foot that connects the flash to the hot shoe on the camera or the flash stand.
12. **Flash head tilt scale** : This scale shows the vertical position of the flash head 90 degrees.
13. **Flash head rotate scale** : This scale shows the horizontal position of the flash head. It can rotate 180 degrees left to 90 degrees right.
14. **LCD** : The LCD screen on the back of the flash shows the current settings.
15. **Zoom button** : You can change the zoom of the flash by pressing this button. It cycles through the zoom range of the flash. When pressed with the **- button (14)** for two seconds, the custom menu opens.

16. **+ and – buttons** : These are used to navigate and adjust the settings on the flash.
17. **Ready light** : This light comes on when the flash is ready to fire.
18. **Test button** : Pressing this button will trigger the flash.
19. **On/Off switch** : This is the power switch that turns the flash on and off.
20. **Mode button** : The Mode button controls which mode the flash is in. Press the button to cycle through the flash modes.
21. **Mounting foot lock** : This lever locks and unlocks the flash when it is attached to the hot shoe of a camera or on the flash stand.
22. **Flash stand** : The SB-600 comes with a hard-plastic flash stand that allows the flash to be placed off-camera. The stand has a tripod socket on the bottom allowing the stand to be placed on a tripod or light stand.

**Figure 5.13** shows the information on the SB-600's LCD screen.

## NORMAL



## REMOTE

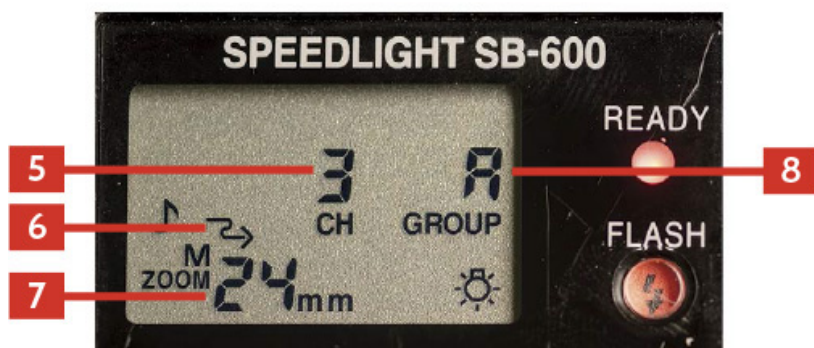


Figure 5.13 Nikon SB-600 Speedlight LCD

1. **Flash mode** : The text in this position will show the mode the flash is set to. Pressing the Mode button cycles through the flash modes.
2. **Zoom** : This shows the current zoom of the flash head.
3. **AF-Assist Illuminator** : The flash can use the AF-assist illuminator when this is lit.
4. **Standby** : This shows that the flash is being used in Standby mode, which conserves power by powering down after 40 seconds.
5. **Remote channel** : This shows the current channel being used by the SB-600 in remote mode.
6. **Remote flash icon** : This mode shows that the camera is in the Advanced Wireless mode.
7. **Zoom position** : This shows the zoom position of the flash

head in remote mode.

- 8. Remote group** : This is the group to which the remote is set.

## Remote Mode

The SB-600 can be used as a remote in the A, B, or C group in one of four channels. To use the SB-600 as a remote flash, just follow these steps:

1. Turn on the flash by pressing the on/off button.
2. Press and hold the Zoom button and the – button at the same time.
3. Press the + button until you see the Advanced Wireless Lighting symbol; it looks like a squiggly arrow pointing to the right.
4. Press the Mode button to change from off to on.
5. Press the on/off button.
6. Press the Mode button until the number above the CH starts to blink and then press the + or – button to change the channel.
7. Press the Mode button until the letter above the GROUP starts to blink and then use the + or – button to select the group.

The SB-600 is now ready to be used as a remote flash; just make sure that the Commander flash is using the same channel.

## SB-800

Considered by many to be the best flash that Nikon has ever produced, the Nikon SB-800 is still sought after by many photographers for its power and versatility, as well as its ability to be both a remote or Commander in the Creative Lighting System.

**Figure 5.14** shows the SB-800's features.





**Figure 5.14 Nikon SB-800 Speedlight**

1. **Built-in bounce card** : This built-in white plastic bounce card is meant to bounce a little light when the flash head is not pointed directly at the subject.
2. **Built-in wide flash diffuser** : When pulled out and placed over the flash head, this diffuser spreads the light from to cover an area sufficient for a 14mm focal length. The zoom on the flash is automatically set to 14mm when it is in use.
3. **Flash head** : The flash head contains the flash tube and the mechanism that zooms the flash head. The SB-800 automatically sensors the focal length of the lens attached and adjusts the zoom to match.
4. **Flash head tilting/rotating lock release button** : Pressing this button allows you to adjust the tilt and rotation of the flash head. The flash head can rotate left or right 180 degrees and can tilt from 90 degrees up to -7 degrees down.
5. **AF-Assist Illuminator** : In low-light situations and when the attached DSLR is set to Single-Subject Auto-Focus, the built-in LED projects a red light on your subject to help the camera achieve focus.
6. **Battery chamber cover** : The SB-910 takes four AA batteries. Sliding the cover toward the base of the flash opens the battery compartment.
7. **Sensor for wireless triggering** : The Advanced Wireless

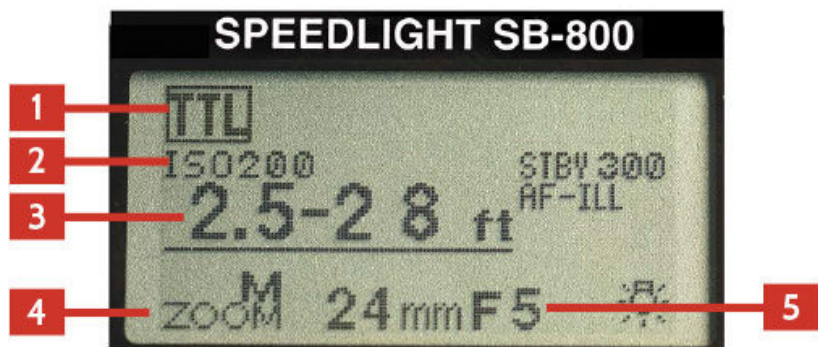
Lighting capabilities of the Creative Lighting System use line-of-sight triggering, and this is the sensor on the flash that reads the light from the Commander when in Remote mode. You need to be careful that this sensor is visible to the light from the Commander for the system to work properly.

8. **Sensor for non-TTL auto flash** : This sensor allows the flash to read the light being bounced off the subject, allowing the flash to meter the light instead of relying on the TTL information from the camera.
9. **External battery terminal** : This port is where the external battery pack (SD-9) plugs into the flash. You need to remove the plastic plug on the flash before you can plug the battery in.
10. **AF-Assist contacts** : These contacts are used to communicate between the flash and camera when the **AF-Assist Illuminator (5 )** is needed.
11. **Hot shoe contacts** : These are contacts that pass the information between the flash and camera.
12. **Diffusion dome detector** : The SB-800 can tell when the supplied diffusion dome is attached and automatically adjusts the zoom to the widest 14mm.
13. **Remote ready light** : When the SB-910 is in Remote mode, there are two lights that will flash in the front of the flash, letting you know it is ready to fire. The front placement makes it easier to see when the flash is placed off-camera.
14. **Sync terminal** : This port allows you to use a sync cable to fire your flashes.
15. **Mounting lock pin** : There is a small pin that when extended locks the flash into the hot shoe or the flash stand. The **mounting foot lock (28)** controls the mounting lock pin.
16. **Mounting foot** : This is the metal foot that connects the flash to the hot shoe on the camera or the flash stand.
17. **Flash head tilt scale** : This scale shows the vertical position of the flash head from -7 degrees to 90 degrees.
18. **Flash head rotate scale** : This scale shows the horizontal position of the flash head. It can rotate 180 degrees in left or right.
19. **LCD** : Screen showing the current state of the flash.

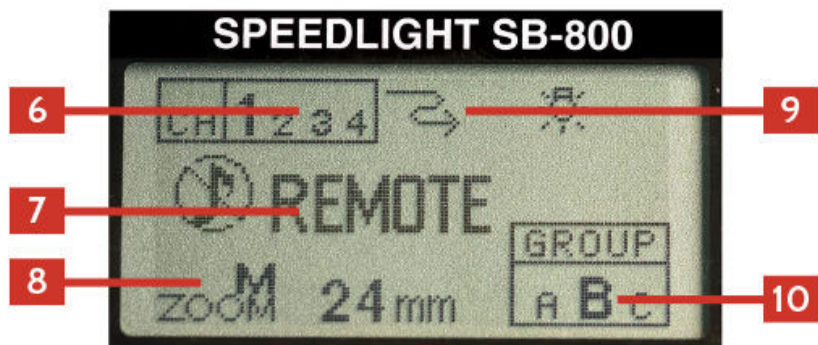
20. **+ and – buttons** : These are used to control the function of the flash depending on the mode.
21. **Mode button** : The Mode button controls which mode the flash is in. Press the button to cycle through the flash modes.
22. **Test button** : The **ready light (28)** comes on when the flash is ready to fire. Pressing the button will trigger the flash.
23. **Mounting foot lock** : This lever locks and unlocks the flash when it is attached to the hot shoe of a camera or on the flash stand.
24. **Modeling light button** : Pressing this button fires the flash continuously in a low-power mode so you can check to see how the final image will look. This can really eat up the battery power, and it is easier just to take a test shot to see how everything looks. If the SB-800 is in Remote mode, the flash will not fire while this button is pressed.
25. **SEL button** : The SEL button sets the currently selected item.
26. **Zoom buttons** : These two buttons change the flash head zoom position from 24mm to 105mm.
27. **On/Off** : This is the power switch that turns the flash on and off. It also closes the custom menu.
28. **Ready light** : This light comes on when the flash is ready to fire.
29. **Flash stand** : The SB-800 comes with a hard-plastic flash stand that allows the flash to be placed off-camera. The stand has a tripod socket on the bottom allowing the stand to be placed on a tripod or light stand.

**Figure 5.15** shows the information on the SB-800's LCD screen.

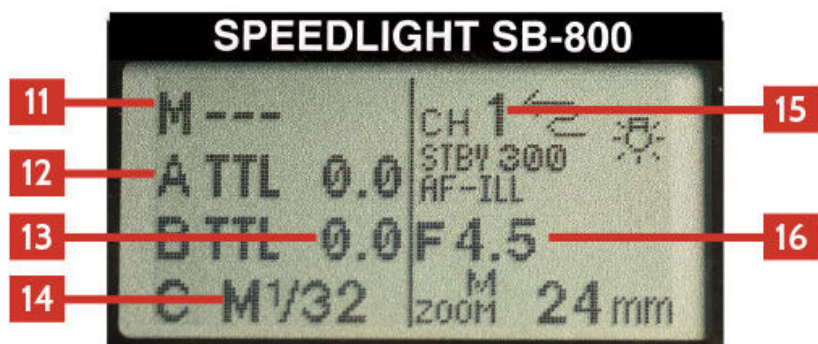
## NORMAL



## REMOTE



## COMMANDER



**Figure 5.15** Nikon SB-800 Speedlight LCD

1. **Flash mode** : This shows the current setting of the flash. Pressing the Mode button cycles through the modes available on the flash.

2. **Camera ISO** : This shows the current ISO of the camera to which the flash is attached.
3. **Effective flash output range** : This shows the effective range of the flash with the current settings.
4. **Zoom setting** : This shows the current zoom setting of the flash. It will change depending on the lens attached, the focal length, and any diffusers attached.
5. **Aperture** : The current aperture setting of the camera.
6. **Remote channel** : This shows the current channel the flash is set for.
7. **Remote mode icon** : When in Remote mode, the flash shows “REMOTE” across the back.
8. **Zoom setting** : This is the current zoom setting of the remote flash.
9. **Wireless Mode icon** : This arrow icon shows that the flash is in Advanced Wireless mode.
10. **Remote group** : This shows what group the remote is currently set to.
11. **Master flash mode** : This shows what mode the SB-800 attached to the camera will use if it is going to add light to the scene. In this example, the --- means that the flash will not be adding any light.
12. **Group icon** : The A, B, and C icons stand for the three groups that the SB-800 can trigger.
13. **Group power adjustment** : The power adjustment for each group is shown here, either as a fraction when in Manual mode or as + or – stops of light.
14. **Group flash mode** : The mode for each group can be different. Here you can easily see and adjust the flash modes.
15. **Channel** : This is the channel that the Commander is set to. The remotes need to be on the same channel to work.
16. **Aperture** : This shows the aperture set by the camera.

## Commander Mode

The SB-800 was the first Speedlight to incorporate the Nikon Creative Lighting System and was the first to have the Advanced Wireless Lighting capability. When it was designed, the settings for turning the flash to Commander mode (and Remote mode) were

not as easily accessible as the subsequent Speedlights. To set the SB-800 as a Commander (or Master) flash, you need to do the following:

1. Press and hold the SEL (Select) button until the menu system opens.
2. Use the rocker switch to select the Master/Remote setting.
3. Press the SEL button, and the word “OFF” is highlighted at right.
4. Use the rocker switch to select Master and then press the SEL button.
5. Press the on/off button once, and the flash is now set to Master mode.

In this mode, you can now set the mode and power for the SB-800 that is on the camera and each of the three groups. Each of the groups can have a different mode and power setting, but remember that all the flashes in that group will have the same settings.

## **Remote Mode**

The SB-800 can be set as a remote flash in any of the three groups. To set the flash as a remote, just follow these steps:

1. Press and hold the SEL (Select) button until the menu system opens.
2. Use the rocker switch to select the Master/Remote setting.
3. Press the SEL button, and the word “OFF” is highlighted at right.
4. Use the rocker switch to select Remote and then press the SEL button.
5. Press the on/off button once, and the flash is now set to Remote mode.

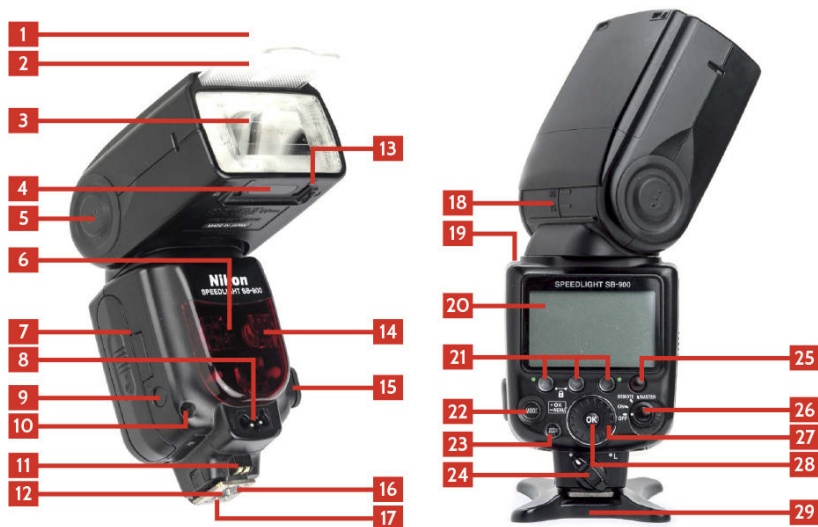
Once the flash is set to Remote mode, the only settings you need to concern yourself with are the group and the channel. The SB-800 can be set to the A, B, or C group and use any of the four channels, so just make sure that the Commander you are using to trigger the off-camera flashes is set to the same channel and can trigger all three groups if you use C.

## **SB-900**

The SB-900 was the update to the SB-800, but it had an issue with overheating and was soon replaced with the SB-910. The SB-900

and the SB-910 are basically the same flash, except the SB-910 resolved the overheating issue. That is not to say that the SB-900 is a bad flash; I have one and use it all the time. You do have to pay more attention when using it a lot in quick succession. This flash was considered the top-of-the-line flash when it came out and can do everything that the SB-910 can do.

**Figure 5.16** shows the SB-900's features.



**Figure 5.16** Nikon SB-900 Speedlight

1. **Built-in bounce card** : This built-in white plastic bounce card is meant to bounce a little light when the flash head is not pointed directly at the subject.
2. **Built-in wide flash diffuser** : When pulled out and placed over the flash head, this diffuser spreads the light from the flash to cover an area sufficient for a 17mm focal length. The zoom on the flash is automatically set to 17mm when it is in use.
3. **Flash head** : The flash head contains the flash tube and the mechanism that zooms the flash head. The SB-900 automatically sensors the focal length of the lens attached and adjusts the zoom to match.
4. **Filter detectors** : When the plastic filter holder and gel filter is attached to the flash head, the flash can read the filter and set the white balance automatically.
5. **Flash head tilting/rotating lock release button** : Pressing this button allows you to adjust the tilt and rotation of the flash head. The flash head can rotate left or right 180



degrees and can tilt from 90 degrees up to -7 degrees down.

6. **Remote ready light** : When the SB-900 is in Remote mode, there are two lights that will flash in the front of the flash, letting you know it is ready to fire. The front placement makes it easier to see when the flash is placed off-camera.
7. **Battery chamber cover** : The SB-900 takes four AA batteries. Sliding the cover toward the base of the flash opens the battery compartment.
8. **External battery terminal** : This port is where the external battery pack (SD-9) plugs into the flash. You need to remove the plastic plug on the flash before you can plug the battery in.
9. **Sensor for wireless triggering** : The Advanced Wireless Lighting capabilities of the Creative Lighting System use line-of-sight triggering, and this is the sensor on the flash that reads the light from the Commander when in Remote mode. You need to be careful that this sensor is visible to the light from the Commander for the system to work properly.
10. **Sensor for non-TTL auto flash** : This sensor allows the flash to read the light being bounced off the subject, allowing the flash to meter the light instead of relying on the TTL information from the camera.
11. **AF-Assist contacts** : These contacts are used to communicate between the flash and camera when the **AF-Assist Illuminator (17)** is needed.
12. **Hot shoe contacts** : These are contacts that pass the information between the flash and camera.
13. **Diffusion dome detector** : The SB-900 can tell when the supplied diffusion dome is attached and automatically adjusts the zoom.
14. **AF-Assist Illuminator** : In low-light situations and when the attached DSLR is set to Single-Subject Auto-Focus, the built-in LED projects a red light on your subject to help the camera achieve focus.
15. **Sync terminal** : This port allows you to use a sync cable to fire your flashes.
16. **Mounting lock pin** : There is a small pin that when extended locks the flash into the hot shoe or the flash stand. The **mounting foot lock (22)** controls the mounting lock

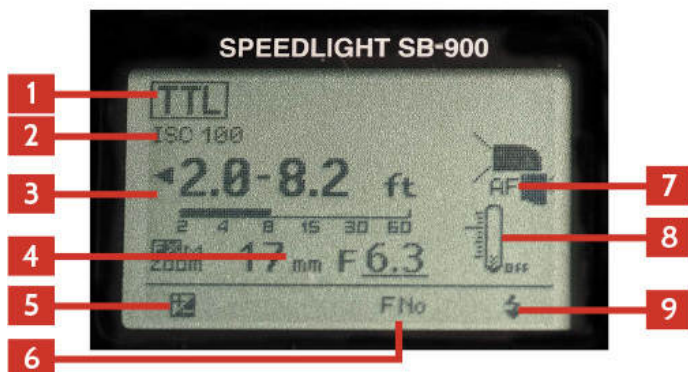
pin.

17. **Mounting foot** : This is the metal foot that connects the flash to the hot shoe on the camera or the flash stand.
18. **Flash head tilt scale** : This scale shows the vertical position of the flash head from -7 degrees to 90 degrees.
19. **Flash head rotate scale** : This scale shows the horizontal position of the flash head. It can rotate 180 degrees left or right.
20. **LCD** : The LCD screen on the back of the SB-900 shows the currently selected flash functions and gives the function buttons context.
21. **Function buttons** : The SB-900 has three function buttons located under the LCD. The buttons have different functions depending on the flash mode. Their function is annotated above each button on the LCD screen. From left to right as you look at the back of the flash, these are function buttons 1, 2, and 3.
22. **Mode button** : The Mode button controls which mode the flash is in. Press the button to cycle through the flash modes.
23. **Zoom button** : You can change the zoom of the flash by pressing this button. It cycles through the zoom range of the flash.
24. **Mounting foot lock** : This lever locks and unlocks the flash when it is attached to the hot shoe of a camera or on the flash stand.
25. **Ready light/test button** : This light comes on when the flash is ready to fire. Pressing the button will trigger the flash.
26. **On/Off/Remote/master switch** : This is the power switch that turns the flash on and allows you to easily set the mode from regular flash to Remote or Commander mode. You will need to press the button in the middle of the switch to Remote or Commander mode.
27. **Selector dial** : You can rotate the selector dial to change settings on the flash depending on the current mode.
28. **OK button** : The OK button has two functions. Press it once to confirm a setting, or hold the button down for a second to open the Custom Functions menu.

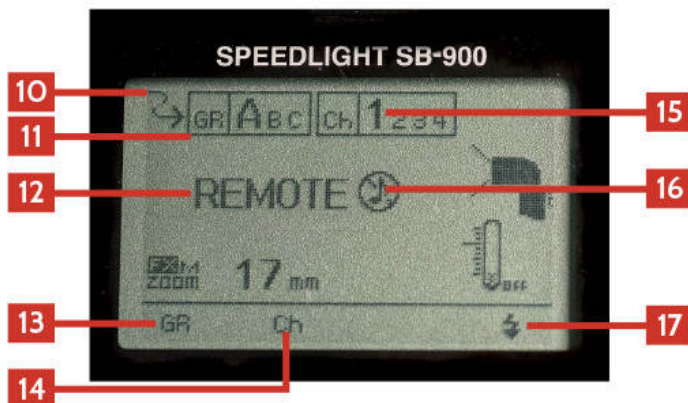
29. **Flash stand** : The SB-900 comes with a hard-plastic flash stand that allows the flash to be placed off-camera. The stand has a tripod socket on the bottom, allowing the stand to be placed on a tripod or light stand.

**Figure 5.17** shows the information on the SB-900's LCD screen.

# NORMAL



# REMOTE



# COMMANDER

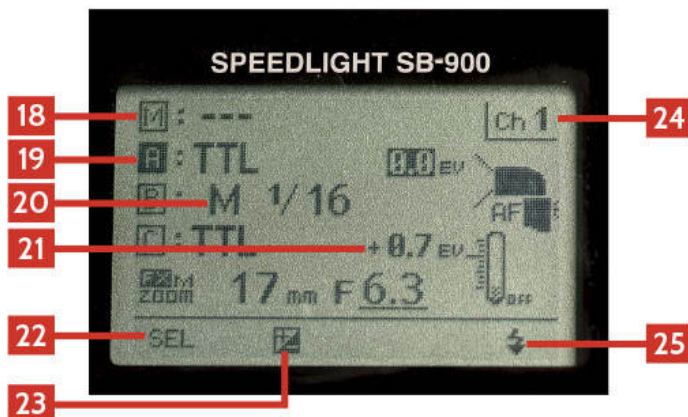


Figure 5.17 Nikon SB-900 Speedlight LCD

1. **Flash mode** : This shows the current setting of the flash. Pressing the Mode button cycles through the modes available on the flash.
2. **Camera ISO** : This shows the current ISO of the camera to which the flash is attached.
3. **Effective flash output range** : This shows the effective range of the flash with the current settings.
4. **Zoom setting** : This shows the current zoom setting of the flash. It will change depending on the lens attached, the focal length, and any diffusers attached.
5. **Label 1** : This shows the function of the function button right below the screen; in normal use it is set to the exposure compensation.
6. **Label 3** : This shows the function of the function button right below the screen; in normal use, it is set to Adjusting the FNo.
7. **Flash graphic** : This shows that the AF-Assist Illuminator is working, the angle of the flash head, and the pattern of the light.
8. **Temperature gauge** : This shows how hot the flash is getting. If the flash gets too hot, it will shut off automatically.
9. **Label 4** : This shows the function of the Test button right below the screen. It can either test the flash or fire the modeling light function.
10. **Wireless Mode icon** : This arrow icon shows that the flash is in Advanced Wireless mode.
11. **Remote group** : This shows which group the remote is currently set to.
12. **Remote Mode icon** : When in Remote mode, the flash shows the word “REMOTE” across the back.
13. **Remote channel** : This shows the current channel the flash is set for.
14. **Label 1** : This shows the function of the function button right below the screen; in Remote mode, it is set to the Group button.
15. **Label 2** : This shows the function of the function button right below the screen; in Remote mode, it is set to Channel or select function.

16. **Remote channel** : This shows the current channel the flash is set for.
17. **Sound icon** : The SB-910 can be set to beep when ready to fire in Remote mode. This icon shows that status of sound setting; in this case, it is off.
18. **Label 4** : This shows the function of the function button right below the screen; in Remote mode, it is set to sound.
19. **Master flash mode** : This shows what mode the SB-900 attached to the camera will use if it is going to add light to the scene. In this example, the --- means that the flash will not be adding any light.
20. **Group icon** : The A, B, and C icons stand for the three groups that the SB-910 can trigger.
21. **Group flash mode** : The mode for each group can be different. Here you can easily see and adjust the flash modes.
22. **Group power adjustment** : The power adjustment for each group is shown here, either as a fraction when in Manual mode or as + or – stops of light.
23. **Label 1** : This shows the function of the function button right below the screen; in Commander mode, it is set to the SEL button.
24. **Label 2** : This shows the function of the function button right below the screen; in Commander mode, it is set to change the selected group power.
25. **Channel** : This is the channel that the Commander is set to. The remotes need to be on the same channel to work.
26. **Label 4** : This shows the function of the Test button right below the screen. It can either test the flash or fire the modeling light function.

## Commander Mode

The SB-900 Speedlight can be used as a Commander unit to control an unlimited number of remote flash units in three groups using one of four channels. To use the SB-900 as a Commander, just follow these steps:

1. Mount the flash on the camera, and turn the Mounting Foot Lock to the right to lock the flash on the camera.
2. Turn the flash to Master mode using the power switch.

3. Use function button 1 to cycle through the A, B, and C groups along with the Master flash.
4. With the selected group highlighted, press the Mode button to select the mode for that group from the following choices:

--- means that the group is turned off and will not fire.

**TTL** sets the group to TTL mode and the camera will control the power of the flash based on the light that the camera reads in the scene.

**M** is Manual mode where you control the power of the flash as a fraction.

**A** is Aperture mode.

5. Use function button 2 to select the flash output.
6. Adjust the flash output of the selected group by using the Select dial and then press the OK button.
7. Press function button 2 to select the channel. Pressing the button cycles through the four available channels.

Remember that all the remote flashes need to be using the same channel as the Commander to work.

## Remote Mode

The SB-900 can be used as a remote for off-camera flash. The SB-900 can be set to the A, B, or C group and use any of the four channels. To use the SB-900 in remote mode, follow these steps:

1. Turn the power switch to REMOTE.
2. Press function button 2 to switch between the Group mode (GR) and the Channel (CH).
3. When in the Group mode, use the Select dial to select the A, B, or C group.
4. When in the Channel setting, use the Select dial to select among channels 1, 2, 3, and 4.

Remember that all the remote flashes need to be using the same channel as the Commander. You also need to make sure that if you are using group C, you are using a Commander that supports group C, such as the SU-800, SB-800, SB-900, or SB-910.

## Final Thoughts

The great thing about the Nikon Speedlights is that they all work



together. You can grow your collection without having to spend top dollar for every additional light. For example, I use SB-600s and SB-700s as remote units controlled by an SB-910. This allows me to use multiple Speedlights without having to purchase multiple SB-910s.

Most of the cameras in the Nikon DSLR lineup can act as Commanders using the built-in pop-up flash. This allows you to start with one Speedlight and use it both on and off the camera.

## 6. Making the Most of Those Cool Extras



Nikon doesn't make a lot of extra equipment, but its battery packs, TTL cords, and close-up kits can make life a whole lot easier when you're using the Nikon Speedlights. The Nikon battery packs give you extra power when on the go and can improve recycle time. The TTL cords allow you to easily move the Speedlight off the camera hot shoe without giving up the TTL capability. With the close-up kit you can mount the SB-R200 flashes at the end of your lens, which enables you to control the light in macro work. There is even a way to block the light from a pop-up flash from affecting the exposure when using it as a Commander with the close-up kit. Underlying all these extras—and the Speedlight itself—is one of the most important items you can buy: batteries. This chapter tackles how to use all these components to their (and your) best advantage, starting with the humble battery.

### Batteries

Most of the Nikon Speedlights use AA batteries, which are plentiful and pretty powerful. Just about every convenience store carries AA batteries, making them easy to find even when you're on location. On the downside, this size battery can run out of juice relatively quickly, and buying new ones constantly can be expensive in the long run. The best solution is to investigate your options, and there are lots of options for AA batteries, as you can see in [Figure 6.1](#) . Alkaline or lithium single-use versus nickel-metal hydride (NiMH) or low-discharge NiMH rechargeables—how do you choose? The sections that follow will help.



**Figure 6.1** You can use a wide variety of batteries in your Speedlights. These are just some of the different AAs that I have used over the years.

## Types of Batteries

When choosing and buying batteries for your Speedlights, you need to balance the trade-offs. The following list covers the main points to consider when deciding what to use:

- **Cost** : Single-use batteries are cheaper than the rechargeable batteries when you initially buy them, but over time the rechargeables are much more cost effective, even factoring in the added expense of a battery charger. If you are an infrequent user of only one flash, then buying a big pack of AA batteries occasionally might seem like a good way to go. If you are using multiple flashes a couple of times a week, however, the rechargeable batteries will save you a lot of money over time.
- **Power** : Does the battery have the juice to power the flash? Which type of battery will fill the capacitor in the flash faster, cutting down the recycle time? Nickel-metal hydride (NiMH) batteries have the fastest recycle time, but they need to be charged before each shoot because they can lose their charge over time.
- **Capacity** : Knowing how many flashes you can get from a full set of batteries is important when it comes to planning a shoot. NiMH batteries have the highest capacity, but they start to lose their charge soon after recharging. Low-discharge (also called *low self-discharge* ) NiMH batteries hold their charge longer but have a lower capacity than NiMH. Regular alkaline single-use batteries have a decent capacity and a long shelf life, so you don't have to worry about getting them ready for a shoot; just grab a set and go. According to Nikon, NiMH batteries can give you about 190 full-power flashes on a full charge when firing the flash every 30 seconds, while regular alkaline AA batteries give

you about 110.

- **Compatibility** : Remember, not all batteries can be charged in all the different chargers. I try to avoid batteries that need a special charger so that all the rechargeable batteries I use can be charged in the same battery charger. This makes the battery maintenance a lot easier.
- **Availability** : As I mentioned, you can grab a set of single-use AA batteries just about anywhere, making them attractive when on location. You need to purchase rechargeable batteries ahead of time, as well as usually charge them prior to use, especially NiMH batteries.

## Single-Use Batteries

Single-use batteries are available in two basic flavors: alkaline or lithium. Each has its pros and cons.

- **Alkaline** : Walk in to a store, grab a set of AA batteries off the rack, and the chances are good that they are alkaline batteries. These batteries work really well in Speedlights and have a long shelf life. Although I've switched to mainly rechargeables, I still carry a pack of these in my bag just in case I run out of power on a shoot. The availability and shelf life make them a great choice when starting out, but when you start using multiple flashes often, the cost does climb fast. The biggest downside to these batteries is the price when shooting a lot. [Figure 6.2](#) shows a selection of alkaline batteries.



**Figure 6.2** I have always been partial to the Duracell alkaline batteries, probably because of their ease of availability and price. The Duracell Quantum claims a 10-year shelf life and a built-in battery check. The Rayovac batteries also claim a 10-year shelf life and work great at a great price.

- **Lithium** : The advantage to lithium AA batteries is their extended shelf life. (Energizer, for example, claims a 15-year shelf life for its Advanced Lithium batteries.) Because lithium batteries can keep a charge for a long time, they're perfect as backup batteries that can sit in your bag until you need them in a pinch. The downside is that they don't give up their power easily, making for longer flash recycle times. These batteries can also be much more expensive than their alkaline counterparts. Lithium batteries can also cause slow recycle times when they get hot because they can suppress the output current as the temperature increases. This is meant to protect the equipment and battery, but the side effect is a slowdown in the recycle times. [Figure 6.3](#) shows the only lithium batteries I have used.



**Figure 6.3** These Energizer lithium batteries have a 15-year or more shelf life and can operate in extreme temperatures. They are also light, and I carry a set in my camera bag for emergencies.

## Rechargeable Batteries

Rechargeable batteries offer a couple of options. You can choose between nickel-metal hydride batteries (NiMH) and the low-discharge nickel-metal hydride batteries (low-discharge NiMH).

- **NiMH (Figure 6.4)** : These are the standard in rechargeable batteries and the type I use. They have the highest capacity and good recycle times. The biggest downside to NiMH batteries is that they lose their charge over time. Because NiMH batteries can lose 10 percent of their power over the first 24 hours after a charge, you'll need to charge them before use.



**Figure 6.4** NiMH batteries come with brand names such as Nuon and Powerex.

- **Low-Discharge NiMH (Figure 6.5)** : Sometimes called low self-discharge NiMH, these batteries are sold as precharged rechargeable batteries because they can hold 80 percent of their charge for close to a year. In other words, low-discharge NiMH batteries can be recharged and stored until you need them. This is a great choice for photographers who don't want to worry about charging up batteries before each shoot. You can easily tell which of the rechargeable batteries are the low-discharge versions because on the package they will claim to come precharged. These batteries can be used right out of the package, while the regular NiMH need to be charged before use.





**Figure 6.5** Some low-discharge NiMH battery brands are Enloop, Energizer Recharge, and the Lenmar R2G.

NiMH batteries all rate their power using the unit *mAh*, which stands for *milliampere-hour* and is just a way to say how much actual power a battery can store at one time. For example, Powerex batteries are rated at 2700 mAh, while Nuon rates its rechargeables as 2500 mAh. Lenmar R2G low-discharge batteries hold 2150 mAh. The higher the mAh number, the longer the fully charged battery should be able to power the Speedlights.

#### Note

Nikon recommends that you do not use carbon-zinc batteries in the Speedlights.

### Care and Feeding of Batteries

One important rule applies to all four types of batteries: Don't mix battery types in your Speedlight; mixing can damage the flash. For example, if you are using NiMH batteries in the flash, make sure all of the batteries are NiMH and not a mix of alkaline and NiMH. You

also don't want to mix different brands of batteries either, and always replace all four batteries at the same time.

The charger that you use is just as important as the batteries. A good charger will keep your batteries in good shape and properly charged, but a bad charger can actually shorten the life of your batteries. Use a smart charger that can read the amount of power in a battery and then recharge the battery just until it is full. Many of the inexpensive chargers work on a timer method; they keep charging for a set time no matter the condition of the actual battery. Do yourself a favor and get a good charger; it will make the investment in the rechargeable batteries last longer.

I use (and love) the Maha MH-C801D charger because it works really well, can charge up to eight AA batteries at a time, and has three charging modes that can help keep your batteries in tip-top shape ( [Figure 6.6](#) ). The three modes are as follows:

- **Default charge** : In this mode, you just stick the batteries in the charger, and they all get filled up with juice in about an hour. This allows you to charge enough batteries for a big job in a couple of hours, plus you can take the charger with you and recharge on location.
- **Soft charge** : In this mode, the charger takes about twice as long to charge the batteries. This slower charging can extend the life of the batteries. When planning a shoot ahead of time, I use Soft Charge mode to get the batteries ready. When you don't need the speed of the default mode, this mode is a good choice.
- **Condition** : In this mode, the charger recharges the battery to full power, discharges it fully, and finally recharges it to full power. The process can take more than 12 hours for a set of 8 batteries, and I do it only when the batteries are not holding a charge for as long as they should. While time-consuming, this discharge-recharge cycle will extend the life of the batteries and make your investment last longer.



**Figure 6.6** The Maha MH-C801D charger with eight Powerex batteries in place. Each battery is charged on its own circuit, so it doesn't matter if they are at different levels of power when placed into the charger. You can also see the individual batteries' charge levels on the display. The button on the right is for soft charging, and the left button is for conditioning.

When packing your gear, devise a method of determining whether batteries are charged or used. Do not just throw a handful of batteries into the bottom of your camera bag and hope for the best. You may think you'll remember which is which, but you won't without a system. One of the reasons that I like and use Powerex batteries is that they come in a plastic case that is perfect for travel. Battery holders of various sizes are also readily available and reasonably priced to help you get organized.

## My Battery Plan

Over the years, my battery plan has evolved. Currently, I use rechargeable batteries in my flashes, but it was only after I calculated how much money I had been spending on single-use alkaline batteries that I finally made the switch. Specifically, I use Maha Powerex AA 2700mAh NiMH rechargeable batteries. They hold a good charge, run for a decent amount of time, and can be efficiently charged in an hour using the Maha Powerex MH-C801D battery charger. Plus, as I mentioned, they come in a really handy battery caddy. I always store fully charged batteries with the positive pointing up and the negative side pointing down ( [Figure 6.7](#) ). After using the batteries, I reverse the storage position so that I don't put a used battery back in a flash.



**Figure 6.7** A set of eight PowerEx batteries all ready to go in their clear plastic case. As you can see, they are all positive side up, meaning that they are fully charged.

I like to have two complete sets of batteries on hand for all the Speedlights I plan to use for a shoot. Along with those batteries, I always keep one pack of regular alkaline AA batteries in my camera bag for emergencies.

The best part about using rechargeable batteries is that you can grow the system as you need it. A single SB-700 Speedlight takes four AA batteries, so a set of eight rechargeable batteries works just fine—a set and a spare. When you add another Speedlight, you can just buy another set of eight rechargeable batteries.

As a final word on batteries, follow these tips to avoid damaging your Speedlight:

- **Install correctly** : When putting the batteries in the flash, make sure they go in the right way. Never reverse the polarity of the batteries.
- **Turn off the Speedlight** : When changing or installing the batteries, make sure that the Speedlight is off. This will help prevent any type of short that could damage the flash.
- **Don't mix battery types** : Make sure all the batteries are the same type and brand. Mixing battery types and even

brands can result in damage to the flash.

- **Don't leave batteries in the flash** : When you are done using the flash, remove the batteries. If you don't, there is a chance the batteries could leak and damage the flash.

## Supplemental Battery Pack

Four AA batteries do the job for Speedlights but aren't overly powerful. To boost the power to the SB-900 and SB-910 Speedlights, Nikon sells an external battery pack called the SD-9 High Performance Battery Pack. Using this battery pack shortens the flash's recycle time and can increase the flash capacity. The problem is that the SD-9 costs about \$200 and is useful only if you use the SB-900 or SB-910 in an environment where you need the flash to recycle faster and last longer. The battery pack holds four or eight AA batteries and plugs into the front of the SB-900/910. Be aware, however, that you still need the four AA batteries in the flash for the battery pack to work. The SD-9 supplements rather than replaces your batteries. The older, six-battery SD-8a pack did the same for the SB-800 Speedlight. [Figure 6.8](#) shows an SD-8a attached to my SB-800.



**Figure 6.8** The older SD-8a battery pack connected to the SB-800 is my combination of choice when shooting events for which I need the most out of my Speedlights.

My main use for a battery pack is shooting events for which I need to be sure that an external flash has power for the whole event or that the flash on my camera can recycle fast enough to keep up with the action. For example, I take a lot of red carpet, step-and-repeat photos during the San Diego Comic Con International ( [Figure 6.9](#) ). At times this can mean standing around for long



periods of time doing nothing, followed by a flurry of activity trying to get a great shot of the talent. This is when you need the flash to recycle fast and for the batteries to last.



NIKON D4 ISO 500 1/60 SEC. F/5.6 SB-800

**Figure 6.9** When I photographed the cast of *How I Met Your Mother* during the press event at the 2013 San Diego Comic Con International, I used my SD-8a battery pack and SB-800 to make sure I didn't run out of power at a crucial moment. The entire shoot lasted only a minute or two.

## TTL Remote Cords

The quickest and easiest way to get your flash off the camera is to

use one of the TTL remote cords. Nikon currently offers two TTL remote cords: the SC-29 TTL Coiled Remote Cord ( [Figure 6.10](#) ) and the SC-28 TTL Coiled Remote Cord. The SC-29 cord has AF-Assist Illuminator capability, and the SC-28 doesn't. You'll find plenty of third-party TTL cords that are made for Nikon cameras and Speedlights, but I have not used any of these, nor do I plan to. I would rather pay the higher price for the cord from Nikon because I know it was built specifically for my Speedlights and camera and won't harm either one. I also prefer the SC-29 because the auto-focus assistance is useful when shooting in low-light situations.



**Figure 6.10** The Nikon SC-29 TTL Remote Cord includes the AF-Assist Illuminator capability.

One end of the cord slides in the camera's hot shoe, while the other has a hot shoe that the flash slides into, as shown in [Figure 6.11](#) . When you attach a Speedlight to your camera via one of these two cords, the camera believes that the Speedlight is mounted on the camera. Because the camera acts like the flash is still in the hot shoe, you get all the benefits, such as i-TTL, high-speed sync, and Flash Value Lock. When you use a TTL cord to attach to a flash in Commander mode, you can better aim the Speedlight at the remote flashes.





**Figure 6.11** The Nikon SC-29 TTL Remote Cord connecting an SB-910 to a Nikon D4. You can see the AF-assist illuminator lamp on the part that slides into the camera's hot shoe.

A primary use for the TTL cords is when attaching the flash to the camera via a flash bracket. To make a flash bracket work, you need a way for the flash and the camera to talk. The easiest way is with a TTL cord. I still use an old flash bracket at events, and [Figure 6.12](#) illustrates how the camera, bracket, and flash all work together. The TTL cord enables the flash to fire when I press the shutter release button.



**Figure 6.12** The Nikon D750 with a flash bracket attached using an SC-29 TTL cord and an SB-910 flash. As you can see,

the flash stays above the camera in both landscape and portrait orientations.

There is a good reason that many event and wedding photographers use flash brackets to position their flashes above the camera, no matter the camera orientation: The resulting photos just look better. Keeping the light in a higher position also reduces the chance of red-eye caused by the light reflecting off the back of the eye, and the light looks more natural. This is particularly true when shooting in portrait orientation. Compare [Figures 6.13](#) and [6.14](#) , and you can see the difference the flash position makes. In both these images the flash was pointed forward, but in [Figure 6.14](#) I used a flash bracket to keep the flash up over the camera.



NIKON D750 ISO 800 1/30 SEC. F/8 SB-910

**Figure 6.13** A portrait-orientated photo with the flash mounted in the camera hot shoe creates a hard shadow, and anything reflective bounces the light right back at the camera.



NIKON D750 ISO 800 1/30 SEC. F/8 SB-910

**Figure 6.14** Using a flash bracket and TTL cord allows you to place the flash above the camera, creating a more natural-looking image. Notice that the hard shadow visible behind the subject in [Figure 6.13](#) is now gone.

### Note

For a more thorough discussion of flash brackets,

You don't have to have a flash bracket to use a TTL cord; you can just hold the flash with your free hand. This takes a little practice to get right, but it can be done.

## Close-up Kits

Nikon offers two close-up kits that place the flash right on the end of the lens. These kits are designed for macro-type work mainly but can be used for just about anything. The only difference between the two kits is that the Nikon Close-Up Speedlight Commander Kit R1C1 comes with an SU-800 Commander and two SB-R200 remotes ( [Figure 6.15](#) ), while the Nikon Close-up Speedlight Remote Kit R1 comes with just the two SB-R200 remote Speedlights. Both kits come with the Attachment Ring SX-1, which attaches the SB-R200 to the front of the lens. The attachment ring can hold up to eight of the SB-R200 Speedlights and has adaptors to attach it using the filter thread on the front of a lens. The kit comes with adaptors for five filter sizes—52mm, 62mm, 67mm, 72mm, and 77mm—allowing the kit to be used on just about any lens.



**Figure 6.15** Here the R1C1 close-up kit is mounted on a camera and ready to use.

Along with the attachment ring and lens adaptors, the close-up kits have stands for the SB-R200 Speedlights, four different-colored gels for each of the flashes, gel holders, extreme close-up adaptors, a diffuser, a flexible arm to position subjects, and the SG-31IR Panel.

These kits use the Advanced Wireless Lighting capability of the Creative Lighting System with a Commander unit (either the SU-800 or a Speedlight with Commander functionality) mounted on the cameras hot shoe telling the remote flashes (the SB-R200) when to fire, what mode to fire in, and how much power to use (

**Figure 6.16** ).





**Figure 6.16** The SU-800 shows a 1:2 ratio of power to group A and group B. The SU-800 is using channel 3.

To use the system, you just follow these simple steps:

1. Determine which lens you want to use and screw the correctly sized adaptor onto the front of the lens using the filter threads.
2. Make sure the SB-R200 units and the SU-800 all contain

batteries. Each takes a single 3V CR123A battery.

3. Turn the SB-R200 units on, set the same channel (1, 2, 3, or 4) on both SB-R200 units, and then set the group (A, B, or C) for each flash with the knobs on the top of the unit. The channel has to be the same for all the flashes, but the group can be different.
4. Attach the SB-R200 units to the attachment ring and then mount the attachment ring to the adaptor on the front of the lens. You will still be able to adjust the angle of the flash and the placement on the ring.
5. Mount the SU-800 on the camera by sliding into the hot shoe.
6. Turn on the SU-800 and set the channel to match the channel used on the SB-R200 units.
7. Set the flash mode and power for each of the groups.
8. Compose the image, press the shutter release button, and the flashes will fire.

You can do the same thing using any flash that has Commander functions and even the pop-up flash on your camera if it can act as a Commander to trigger the SB-R200 flashes.

The SU-800 has a special mode for close-up work. Changing the SU-800 from a regular Commander to Close-up mode takes only the flip of a switch. Open the battery compartment of the SU-800 and toggle the little switch over on the side from Normal to Close-up (the flower icon). When you set the SU-800 to Close-up mode, only groups A and B will fire; any SB-R200 units set to group C will not fire.

In Close-up mode you can pick either TTL or Manual mode for the flashes and can control the power of each group as a ratio between them. In this mode, both groups have the same flash mode, so you cannot mix TTL and Manual like you can in the Normal mode. If you do not see both the A and B groups represented on the back of the SU-800, press the A-B button until you do. When in TTL mode, press the arrow buttons to adjust the ratio of power between the A and B groups. Press the right arrow to give more power to the B group and the left arrow to give more power to the A group. Press the Mode button to switch between the TTL and Manual modes. In the Manual mode, use the SEL button to switch between the A and B group and then adjust the power using the arrow buttons. You can adjust the power from 1/1 to 1/64 for each group.



You do not have to use the Close-up mode when using the SB-R200 units. I actually prefer the Normal mode because it gives me three groups to work with and more control over the power output in TTL mode.

The close-up kits allow you to get in close with controlled light, as you can see in [Figures 6.17](#) and [6.18](#) .



NIKON D750 ISO 800 1/200 SEC. F/20 SU-800 SB-R200

**Figure 6.17** The placement of the SB-R200 flashes right at the end of the lens enables me to control the spill of the light. Here I photographed the stem and leaves of a simple houseplant. The placement of the light draws your eye into the image.



NIKON D2X ISO 400 1/60 SEC. F/5.6 SU-800 SB-R200

**Figure 6.18** I love photographing flowers, especially orchids using a macro lens and the close-up kit. For this shot, I placed the lights on the top and bottom of the lens with slightly more power going to the top light.

You can use the pop-up flash on your Nikon DSLR to fire the SB-R200 units as long as the camera has the capability to act as a Commander. So that the light from the built-in flash doesn't affect the final image, however, you need to use an extra component ( [Figure 6.19](#) ). The SG-3IR panel slides into the camera's hot shoe and is positioned to block the light from reaching the subject but still allows the built-in flash to trigger the SB-R200 units.



**Figure 6.19** As demonstrated on this Nikon D750 DSLR, the SC-31R panel sits in front of the pop-up flash, blocking the light from the subject but allowing the triggering of the SB-R200 units.

## Final Thoughts

Nikon does not make a lot of Speedlight accessories because the flash units themselves do most of the work. If I were going to buy one item to take my flash photography to the next level, it would be a TTL cord to get my flash off the camera.

When it comes to powering your flash, there is no right way to do it. Everyone has different needs and priorities. I prefer to use rechargeable batteries because of the long-term savings, and I don't like the thought of filling up the landfill with tons of single-use batteries every year.

If you enjoy macro photography and want to take it to the next level, then the close-up kit is a great way to go, and I love using the SU-800 as a Commander when working with all off-camera flashes.

## 7. Light Modifiers for Small-Flash Photography



NIKON D4 ISO 100 1/320 SEC. F/2.8 50MM LENS

Adding light right where you need it, a Speedlight is great tool by itself, but it can be even more versatile with the help of modifiers. Whether you prefer to start simple with your Speedlight's built-in options that change the size and shape of the light or to plunge into the add-on market, you'll find a modifier to suit your lighting needs. There are modifiers that take the small light from the flash and make it a lot more versatile. There are modifiers that make the small light much bigger, giving you a softer and more pleasing portrait light. There are modifiers that control the spread of the light, allowing you to add light to just a small part of the scene with great accuracy. There are modifiers that change the color of the light either to match the ambient light or for special effects. In fact, there are modifiers that do many more things than I can list here. Some of the modifiers are placed between the Speedlight and subject while others are attached directly to the flash, but all will add to your creativity.

### Speedlight Options

With such a tantalizing array of modifier choices on the market, it's easy to overlook the basics: You can do a lot to change the quality of the light produced by a Speedlight right out of the box, without even putting the diffusion dome over the flash head. The sections that follow offer some simple settings that you can use to adjust the quality of light from your Speedlights. Keep in mind that not every Speedlight has every setting.

## Zoom the Flash Head

A Speedlight's zoom function controls the angle of coverage of the light produced by the flash. If you want a narrow beam of light, adjust the zoom of the flash to its maximum; for the SB-910, that is 200mm. If you want a wider beam, adjust the zoom to the widest settings; for the SB-910, that is 24mm without the diffusion dome. When a Speedlight is mounted on your camera, its zoom automatically matches the focal length of the lens attached to the camera and changes as you change the focal length.

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### Note

The SB-300 and the SB-500 do not have any zoom controls.

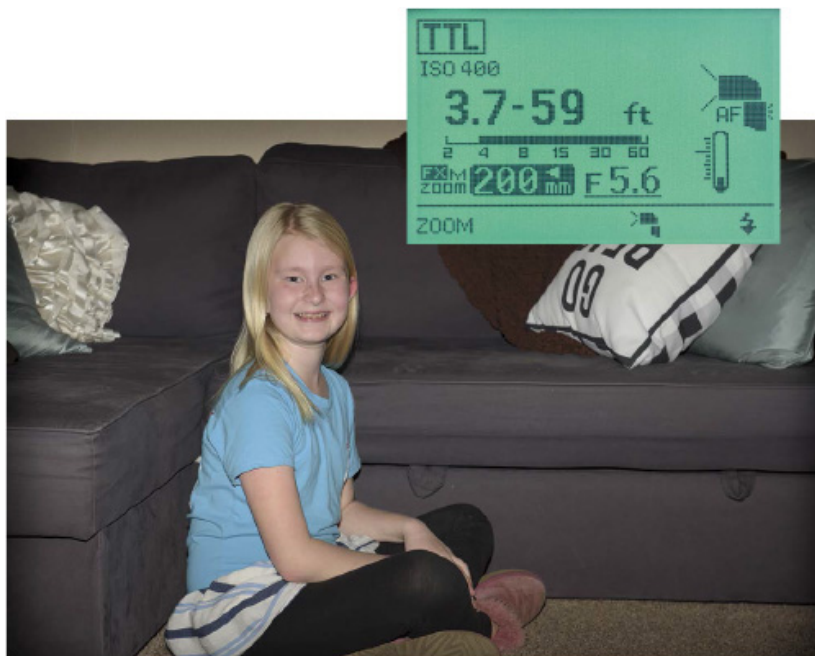
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Compare the difference in the spread of light from a flash zoomed to 24mm in [Figure 7.1](#) with light spread from a flash zoomed to 200mm in [Figure 7.2](#) .



NIKON D4 ISO 100 1/250 SEC. F/5.6 SB-910

**Figure 7.1** The SB-910 with the flash head set to 24mm makes a wide spread of light.



NIKON D4 ISO 100 1/250 SEC. F/5.6 SB-910

**Figure 7.2** The SB-910 zoomed to 200mm creates a tighter,



punchier light.

## Wide-Angle Diffuser Panel

The wide-angle diffuser panel pulls out of the flash head and flips down over its front to create a wider spread of light. When the wide-angle diffuser panel is in place, it changes the zoom from the widest setting of 24mm to an even wider 14mm. To use the built-in wide-angle diffuser, you just pull it gently out of the slot on the top of the flash head until it can fold down over the flash head. Do not force the panel in or out because you could damage it.

When the diffuser is over the front of the flash head, the zoom setting automatically changes to 14mm. The SB-600, SB-700, SB-800, SB-900, and SB-910 all have wide-angle diffusers built in. You can see the SB-700 with the wide-angle diffuser panel in place in [Figure 7.3](#) .





**Figure 7.3** The wide-angle diffuser panel on the SB-700 pulls out from the head of the flash and folds down, automatically setting the zoom to 14mm.

## Tilt and Rotate

One of the quickest ways to change the quality of the light from your Speedlight is to change the angle of the flash head. Adjusting the direction of the flash head allows you to bounce the light off a wall or ceiling. When you bounce the light off a nearby surface, the light source becomes much larger and the light much softer. You can also aim the light over the subject to illuminate the subject with the edge of the light and create a more natural-looking falloff. All the Speedlights allow you to adjust the tilt of the flash head, and all except the SB-300 allow you to adjust the rotation.

## Bounce Card

The bounce card is the small, white piece of plastic that pulls out from the top the flash head along with the wide-angle diffuser. To access the bounce card, first pull out the wide-angle diffuser; then, while holding the bounce card, push the wide-angle diffuser back into the slot. The bounce card is meant to bounce some of the light into the subject's eyes when you aim the flash up at 90 degrees. The idea is that the light from the flash will bounce off the ceiling and some of the light will hit the bounce card and help to give a little pop of light to the subject's eyes. In reality, the bounce card doesn't actually do too much because of its small size. The SB-700, SB-800, SB-900, and SB-910 ( [Figure 7.4](#) ) all have built-in bounce cards.



**Figure 7.4** This Nikon SB-910 has its built-in bounce card pulled up in position.

You can easily create your own bigger, and better, bounce card with a rubber band and a white notecard, as shown in [Figure 7.5](#) . One real advantage of the homemade bounce card is that you can use the diffusion dome with it, which you can't with the built-in version. The bounce card allows more light to reach the subject, as shown in [Figure 7.6](#) .



**Figure 7.5** Using a 4x6-inch card as a homemade bounce card on a Speedlight, such as this SB-910, creates a much larger bounce surface than the built-in bounce card.



NIKON D750 ISO 200 1/125 SEC. F/5.6

**Figure 7.6** A larger bounce card allows a lot more light to reach the subject, in this case adding some fill light to the young hula-hooper.

## Flash Illumination Patterns

The SB-700, SB-800, SB-900, and SB-910 each offer three different flash illumination patterns that control how the light spreads in the frame. For example, **Figure 7.7** shows the illumination pattern switch on the SB-700. Simply slide the switch to choose one of these three available patterns:

- **Standard** : This is the default mode of the flash. The light is

brighter in the middle of the frame with less light at the edges.

- **Even** : In this mode there is less light falloff at the edges of the scene. The flash output is more even from edge to edge.
- **Center-Weighted** : This mode produces more light falloff at the edges compared to the standard setting.



**Figure 7.7** The Nikon SB-700 offers a switch (at right) to select the flash illumination pattern.

The illumination pattern you choose changes the effective range of the flash. If you use an SB-910 set at 24mm, ISO 100, and f/5.6, for instance, the effective range of the flash is 2 to 15 feet at the Standard setting, 2 to 12 feet at the Even setting, and 2 to 18 feet at the Center-Weighted setting.

Changing the mode creates a subtle change in the way the light illuminates the subject and is most noticeable when your subjects are close to the edge of the frame.

## Diffusers

A diffuser is anything that is placed between the flash and the subject that turns a small light source into a bigger light source to create a softer light. Diffusers can range from a small plastic dome

that fits over the flash head to large panels that sit between the flash and the subject.

## Diffusion Dome

A diffusion dome is a hard plastic cover that slips over the head of a flash. Made of a semi-opaque material, domes have a textured surface on the portion that fits over the front of the flash to help break up the light from the flash. When the flash fires, the light produced can't blast straight out of the flash. Instead, the photons bounce around inside the dome and then leave in all directions, creating a softer, diffused light. The SB-600, SB-700, SB-800, SB-900, and SB-910 Speedlights all come with diffusion domes. You just slip the diffusion dome over the head of the flash, as shown in [Figure 7.8](#).



**Figure 7.8** When this SB-700 fires, the light will bounce off the textured plastic of the diffusion dome and then bounce around

inside the dome to spread and soften the flash.

If you misplace the diffusion dome that came with the flash or just want a different one, you can find many third-party diffusion domes available for all Speedlights. For example, Sto-Fen makes its Omni-Bounce for all Speedlights. Each is designed for the specific shape of the flash, so make sure you get one designed for your model. You can also get replacement diffusion domes directly from Nikon—as I found out because my dog mistook one for a chew toy.

I use the diffusion dome on the head of the flash even when using the flash inside a softbox or with an umbrella because it helps to soften the light even more than if you just use a plain flash.

## Umbrellas

Umbrellas used in photography look a lot like those that keep the rain off you outside. Available in a variety of sizes, they open and close in the same way. The real difference is their material, and that depends on how they will be used. In photography, you can buy umbrellas to shoot light through or to bounce light out of. Some umbrellas even have removable covers that enable you to use them both ways.

When you fire a Speedlight through an umbrella, the light gets broken up by the diffusion material and becomes a larger softer light source. These umbrellas are usually made of a white, semi-opaque, silk-like material that allows most of the light through. When you shoot through the umbrella, you point the shaft away from the subject so the flash fires into the inside of the umbrella. In **Figure 7.9**, I fired an SB-800 through a large umbrella to illuminate Jennifer. You can see the spill of light hitting the ceiling around the edges of the umbrella, and that light adds to the illumination in the room.





NIKON D750 ISO 320 1/80 SEC. F/2.8

**Figure 7.9** Firing the Nikon SB-800 through the translucent umbrella creates a soft light that illuminates the whole the room.

When you use an umbrella as a bounced light source, the inside of the umbrella needs to have a reflective surface of white (the most common), silver, or gold. In this method, you aim the umbrella shaft at the subject and then aim the light away from the subject in the umbrella. The light bounces back out to illuminate the subject (see [Figure 7.10](#) ).



**Figure 7.10** The Nikon SB-910 firing into the umbrella creates a big, soft bounce light. One Speedlight fired into an umbrella can create a much larger light source than the Speedlight alone.

Convertible umbrellas can be used as either shoot-through or bounced-light umbrellas. These white umbrellas come with a removable black cover. Leave the cover on to use it as a bounce light or remove the cover to shoot through the umbrella. This makes it a pretty economical device, but there is a better reason to use a convertible umbrella. You can leave part of the cover on the umbrella to block only some of the light and gain more control over the light.

The size of the umbrella makes a difference in the quality of the light and what you can light, as well. The smaller the umbrella, the smaller the area of soft light, and the smaller the area you can shoot. For example, a 30-inch umbrella works great for a headshot or a small product, while a 45-inch umbrella can be used for a full-length shot of one or two people. When you use bigger umbrellas, you will need more light, usually in the form of more Speedlights. For example, when using an extra-large (72-inch or larger) umbrella, you will need to use at least two and preferably more Speedlights to produce enough light to fill it.

Although umbrellas are easy to use and relatively inexpensive, they don't give you tight control over the light. The light can spill out around the edges of the umbrella, going pretty much everywhere. When you need to light a large group or area, you can use this spill to your advantage, but sometimes you need more control.

## Softboxes

Softboxes offer a greater amount of light control, especially compared to umbrellas. A softbox is basically a black box with a translucent front panel and the Speedlight in the back. The inside of the soft box can be white or reflective silver. The light bounces around the inside of the softbox before it exits through the front.

**Figure 7.11** shows the Westcott Rapid Box Octa, a softbox made specifically for small flashes.



**Figure 7.11** The Westcott Rapid Box Octa is a softbox made specifically for small flashes. Here an SB-700 is mounted into a 26-inch Rapid Box Octa.

Softboxes are traditionally used with studio lights, but with the huge increase in the use of small flash, there are now a great many softboxes designed specifically for Speedlights.

Available in many different shapes and sizes, softboxes are usually square, rectangular, or octagonal. The octagonal softboxes are usually called *octas* for short. The size, shape, and construction of the softbox all have an effect on the light the box produces. Here are some things to look for:

- **Front lip** : Some softboxes have a lip in the front because the front diffusion panel is set back from the front of the softbox; others mount the diffusion panel flush to the front. Softboxes with a front lip produce slightly more controllable light because the light doesn't spill out the edges.
- **Additional diffusion** : By definition all softboxes have a front diffusion panel, but some have an internal diffusion panel as well. This second panel helps to further soften the light. Inside the box, the light diffuses as it hits the first panel, and then it travels a short way in the box and passes through the second panel.
- **Internal color** : The inside of a softbox is usually either white or silver. Both colors bounce the light around the inside of the softbox. Silver gives a punchier light, while a white interior creates a softer and a little more forgiving light.
- **Shape** : Some people prefer the shape of the catchlights produced by the octas, while others prefer the square. It really is a personal choice, but the shape of your softbox controls the shape of the light. I use square, octagon, and rectangular softboxes, all depending on how I want the light to look.
- **Accessories** : Many softboxes have optional accessories that enable you to further modify the light. For example, the Westcott Rapid Box allows you to add a small metal reflector inside. Called a Deflector Plate, the reflector creates a light more like a beauty dish. You can also place grids over the front of the softbox to control the spread of the light.

The light from a softbox is generally very soft, especially when used close to the subject, as illustrated in [Figure 7.12](#) . This makes it one of the most popular light modifiers for photographing people.



NIKON D750 ISO 400 1/250 SEC. F/5.6

**Figure 7.12** The Nikon SB-910 used inside a softbox creates a pleasing soft light on the subject. There are no hard shadows on the face, but instead the light seems to wrap, creating a smooth transition between the light and the dark.

## Diffusion Panel

A diffusion panel is just a semi-opaque piece of material that you

can put between the light source and the subject. The diffusion panel then acts as a bigger and softer light source than the original. My favorite diffuser is the Lastolite TriGrip 1-Stop Diffuser simply because the design makes it easy to hold in place.

When held close to the model's face, as demonstrated in [Figure 7.13](#), the diffusion panel creates a soft, pleasing light by diffusing the light from the SB-910 ( [Figure 7.14](#) ).



**Figure 7.13** The Lastolite TriGrip 1-Stop Diffuser held close to the subject's face softens the light from the flash.





NIKON D4 ISO 100 1/200 SEC. F/6.3

**Figure 7.14** For this portrait, placing the diffuser between the light and the subject created a softer light with no hard lines between the light and the shadow on his face.

One advantage of using a diffusion panel rather than a softbox or an umbrella is that you can place a diffusion panel further away from the light source. Because the light travels further, allowing it to spread out before passing through the modifier, the resulting light is even softer. You can also use the diffusion panel in conjunction with other light modifiers ( [Figure 7.15](#) ). Adding a diffusion panel in front of the softbox makes the soft light even softer, as shown in [Figure 7.16](#) .





**Figure 7.15** Placing the diffusion panel between a softbox and the subject creates an even softer light than just the softbox alone.



NIKON D4 ISO 100 1/250 SEC. F/5.6

**Figure 7.16** The setup in [Figure 7.15](#) resulted in this portrait. You can see that there are no hard shadows at all and the light seems to wrap around the face.

## **Snoots, Grids, and Gobos**

The tools in this section control the spread of light, enabling you to add some light right where you need it and none where you don't. *Snoots* and *grids* do this by going over the head of the flash and restricting the light. The main difference between a snoot and a grid is the amount of control you have over the spill of light. A grid's light is a more accurate and controlled compared to that of a snoot. *Gobos* , also known as *flags* , usually just attach to one side of the flash and stop light from spilling over on that side. The next three sections take a closer look at each option.

### **Snoots**

A snoot is a tube that goes over the flash head and tightly controls the spread of the light. Using a snoot allows you to illuminate just the parts of the scene you want to ( [Figure 7.17](#) ). The first snoot I ever used was a pasta box with the ends cut off and a little black gaffer tape to keep it in place. The two key factors in using a snoot are the length of the snoot and the color inside it. The longer the snoot, the tighter the spread of the light is. If the inside is a reflective color, the snoot will bounce the light around, causing it to spread upon exiting. To prevent this, you can use a little black gaffer tape to make the inner surface less reflective.



NIKON D750 ISO 200 1/250 SEC. F/4

**Figure 7.17** The light from the flash is tight and controlled when you use a snoot. The label of the Rhum is well lit, for example; then the light just falls off.

The snoots that I use now are made by Honl Photo ( [Figure 7.18](#) ) for the simple reasons that they work well and are close to indestructible (my pasta box was not). To create a less reflective

surface, you can use Honl Photo snoots with the black side on the inside—no gaffer tape required. Similarly, you can also use ExpoImaging’s Rogue FlashBenders as snoots: Simply roll the FlashBender into a tube and secure it with its Velcro edges.



**Figure 7.18** A Velcro strap around the head of the flash holds the Honl Photo snoot in place on the SB-800 or any Speedlight.

## Grids

A grid controls the spread of the light from a flash by using a group of small tubes all packed next to each other. Using a grid gives you control over where the light will hit plus gives the light a little softer, more natural edge compared to a snoot. The longer the grid and the smaller the individual tubes, the tighter the beam of light. A tight grid can give you really fine control over what the light does and doesn’t hit.

My favorite grid is the Rogue Grid from Expo-Imaging ( [Figure 7.19](#) ), which is basically three grids in one and comes with specially cut gels that can be inserted into the grid. The Rogue Grid allows you to create a 45-degree, 25-degree, or 15-degree grid with the same kit.



**Figure 7.19** The Rogue Grid attaches to the front of the Speedlight. Notice the honeycomb grid pattern that controls the spread of light.

## Gobos

A gobo, as its name implies, goes between your light and the subject, allowing you to control what the light actually illuminates. When you want to block some of the light leaving the flash, the easiest way is to place something opaque in the way of the light. Whether you use your hand, a notecard covered in gaffer tape, or a commercially available option, you're using a gobo. Rectangular gobos are sometimes called *flags*, and you can use them on the sides, top, or bottom of your flash to control the spill of the light ( [Figure 7.20](#) ). For example, if you have a light placed off to the side and you want to make sure that it doesn't illuminate the background, you can flag the back of the flash so the light can't travel in that direction.



**Figure 7.20** This Honl Photo flag is held in place with a Velcro strap around the SB-800's flash head.

Using a flag on each side of the flash, a modification called *barn doors* tightly controls the spill of light on both sides of the flash. You can make your own barn doors with some notecards, black gaffer tape, and a rubber band, as demonstrated in [Figure 7.21](#) . As you can see in [Figure 7.22](#) , this homemade rig focuses the flash in close to produce more dramatic light on the subject.



**Figure 7.21** Called barn doors, flags on either side of a flash enable you to control the spill of light. Here the flags are just notecards covered in strips of black gaffer tape and held in place with a rubber band.





NIKON D750 ISO 200 1/250 SEC. F/9

**Figure 7.22** For this shot, I placed the flash to the left and aimed the light at the side of the hand-painted bottle. Because the light was restrained by the flags, it illuminated only part of the bottle.

## Gels

Gels are colored pieces of acetate or hard plastic that cover the front of the front of the flash to change the color of the light produced. The SB-600, SB-800, and SB-900 Speedlights all came with gels and a gel holder, while the SB-700 and the SB-910 Speedlights come with hard-plastic gels. You can use gels for two very different effects. The first is to make the color of the light produced by the flash match the ambient light in scene, and the second is to create a color wash as a creative tool.

## Color Correction

The color of the light produced by a Nikon Speedlight is close to the light produced outside by the sun around midday. This is great if you are adding a little fill light outdoors under the same color light but doesn't do you any good when you're trying to match a tungsten light or the colors of a fluorescent bulb. Gels can help you balance the flash's light with the ambient light.

You may hear a lot of terms like *CTO* , *CTB* , *quarter cut* , *half cut* , and *full cut* surrounding color-correcting gels. This insider talk can make a beginner feel awkward asking about the best ways to use

the various gels. The answer actually is simpler than it sounds and pretty easy to implement. All you have to do is put the right color gel in front of the flash to match the ambient light's color. Here's a guide to getting it right:

- **Color temperature orange (CTO ):** These gels turn the light more orange to match tungsten/incandescent lights. The gels are often referred to as *CTO* or *color to orange* , which is easy to remember because they make the light more orange.
- **Color temperature blue (CTB ):** These gels turn the light from your flash to a cooler blue that matches the light in shade to deep shade. These gels are often called *CTB* or *color to blue* because they change the light to blue.
- **Green :** These gels turn the light from your flash to a green that aims to match the green in fluorescent lights.

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### Note

For more information about the color of light, see [Chapter 1](#) .

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When discussing the strength of gels, photographers use the term *cut* . A *full cut* of a gel means that color gel is used at full strength. A *quarter cut* or *half cut* of a gel means that the gel's color is lighter, specifically one-quarter or half strength, respectively. For example, a full-cut CTO is the same as two half cuts of CTO stacked on top of each other. By stacking the gels, you can adjust the strength of the gels' effect on the light from the flash.

As I mentioned earlier, the SB-700 and SB-910 Speedlights come with hard-plastic gels ( [Figure 7.23](#) ) in both green and CTO. Nikon calls these a fluorescent filter and an incandescent filter, respectively, because they are intended for matching the color of fluorescent lights and incandescent lights. These gels do something very cool when attached to a Speedlight mounted on a camera. When you adjust the camera's the White Balance setting to Auto or Flash and attach one of the Nikon gels, the camera will automatically adjust the white balance to match the light produced from the flash.



**Figure 7.23** The Nikon SB-700 and SB-910 come with hard-plastic gels in CTO and green.

Alternately, you can create some dramatic lighting by purposefully using a color gel that does *not* match the ambient light color and then setting the white balance to match the light from the flash. For example, if you adjust the camera's White Balance setting to Tungsten, the colors of the image will shift toward blue as the camera adds a little blue to counteract the reds in the tungsten lights. If you photographed outside in the late evening when the light is blue to start with, the whole image will look very blue. If you also add a full CTO gel on your Speedlight, that very warm light will counteract the blue shift created by the Tungsten White Balance setting so that anything that the flash illuminates looks normal. You can see how this works in [Figure 7.24](#) ; I lit Tim with one off-camera flash gelled with a full-cut CTO and fired through a small softbox creating a natural-looking skin tone while the white balance was set to Tungsten to create a very blue sky.



NIKON D700 ISO 200 1/250 SEC. F/5.6

**Figure 7.24** The light from the flash with a CTO gel illuminates Tim, making him look normal, and the color shift by adjusting the White Balance setting to Tungsten creates the very blue sky.

## Color Wash

Gels come in many colors besides CTO, CBO, and green, and you also can use them to create color washes or different colored areas in an image. Gels can change a whole scene because color can affect the mood of an image. Want the image to look a little cold? Add a touch of blue. Want to warm up a scene? Add a little red. Want to change the background in a dull image? Add a splash of color. As shown in [Figure 7.25](#), the subject is the same in each shot, but the backgrounds are radically different because of various color filters on the Speedlight aimed at a plain black background.



NIKON D750 ISO 200 1/250 SEC. F/5.6

**Figure 7.25** Using different colored gels allowed me to change the background color of the image quickly.

Many manufacturers offer gels already prepped to go on the front of your flash, as you'll learn in the "[Product Options](#)" section coming up. ExpoImaging's Rogue Universal Gels are some of my favorites, and no gel discussion would be complete without mentioning Rosco gels. I was introduced to the Rosco line of gels by David Hobby, when he convinced Rosco to release the Strobist Collection of 55 filters in 20 colors. These gels are cut to fit over the front of the flash and are held in place by a simple rubber band. The only issue that I have with the Rosco gels is that they are cut a little small for the SB-900 and SB-910 flash heads. The Rogue Universal Gels from ExpoImaging are much larger and have longer tabs that wrap around the flash head, making them much easier to use ( [Figure 7.26](#) ). Rogue Universal Gels also come in a useful gel holder with dividers that keep the gels organized.



**Figure 7.26** Compare the gels from Roscoe (top) and ExpoImaging and notice the huge size difference.

ExpoImaging also offers a set of gels made specifically for the Rogue Grid. These are round and fit exactly into the grid holder, making them especially easy to use.

## Reflectors

Reflectors bounce the light from the source into the scene. The source can be the sun, any ambient light in the scene, or (most importantly here) the light from your Speedlights. You can use any surface to bounce light—a nearby wall, the ceiling, a commercial reflector—and thereby create a larger light from the small Speedlight. Commercial reflectors are usually constructed as a spring steel ring with the reflective surface attached. Many times they come with covers that give you a choice of surface colors. The color of the reflector's surface affects the color of the light. Most reflectors come in the following colors:

- **Gold** : The gold surface creates a warm light that matches early-morning and late-afternoon sunlight. A gold reflector can be a little much if you are not careful, turning a healthy glow into an orange radiation glow. I don't use the gold side of the reflector often with the Speedlights, but it can be useful for matching the golden hour light.
- **Silver** : The silver side of the reflector is probably the most useful because it bounces a huge amount of light and gives the light some more punch. You just have to be aware that

the bounced light from the silver surface could overpower the main light.

- **White** : White reflectors don't bounce as much light as gold and silver surfaces, but they don't change the color of the light either. The light from the white surface can add a nice even light to the scene and reduce the hard shadows. For a homemade white reflector, try a nearby white wall or a piece of white poster board; both work well.
- **Combination colors** : Some reflectors come with sides that are a combination of white and silver or white and gold. These work great because they are toned-down versions of the gold surfaces and silver surfaces.

Reflectors come in a variety of sizes; the bigger ones obviously reflect more light than the smaller ones. I like the 40- to 42-inch reflectors for most photos, as long as I can get the reflector in close enough to the subject (see [Figure 7.27](#) ).



**Figure 7.27** I prefer 40-inch reflectors; this one is showing its silver side.



## Product Options

A great many manufacturers build light modifiers specifically for small flashes. The sections that follow highlight some that I own, have used, and still use on a regular basis. This is by no means a complete list of all the modifiers available, but it will give you a good place to start. For more information on each product, see [Appendix A](#).

### Lastolite Accessories

Lastolite makes some of my favorite products for dealing with light; they're made well and really do last. If I had to pick only one accessory to take with me on a shoot, it would be the 30-inch TriFlip 7:1 Kit, which consists of a TriGrip 2-Stop Diffuser and a set of panels with seven different surfaces that enable you to diffuse, bounce, or block light. Its triangular shape and built-in handle make the diffuser easy to place just about anywhere and or hold with one hand. The best part is that the whole package folds up, making it easier to carry on location.

### Joe McNally Signature Line

Considered a master of small-flash lighting (of all lighting actually), Joe McNally teamed with Lastolite to design some light-shaping tools specifically for his work with small flashes. The resulting Joe McNally Signature line is now available for us all to use and consists of eight excellent products specifically designed for Speedlights. For me, however, two products stand out from the rest.

- **Joe McNally TriFlash** : Designed to hold three Speedlights at the same time, this device is a small metal square with a cold shoe on the top and one on each side that then mounts on a light stand using the bottom fitting ( [Figure 7.28](#) ). The genius to the design is that the three cold shoes can rotate. When the Speedlights are mounted, you can position them so that the Advanced Wireless receiver sensors all face the same way, making triggering the flashes a lot easier. The metal cold shoes even have a small piece of tape on the inside to stop the contacts on the flash from contacting the metal.



**Figure 7.28** This Joe McNally TriFlash has three SB-800 Speedlights mounted. You can see how each of the Speedlights can be rotated, allowing them to be triggered off-camera.

- **Joe McNally 4 in 1 Umbrella** : This might look like a standard convertible umbrella that can convert from a shoot through to a white bounce, but it is much more. This umbrella has a removable square panel in the middle that turns the big, soft, uncontrollable umbrella light into a smaller, soft, softbox-type of light all in the same device. And, as an added bonus, the inside can be skinned with either white or silver, giving you options when you use it as a bounce light source.

All of the Joe McNally Signature light-shaping tools are tough and can handle life on the road, as you'd expect from a photographer who spends so much time on location.

## LumiQuest Modifiers

The first small softbox I ever used on my Speedlights was the LumiQuest SoftBox II ( [Figure 7.29](#) ), and it still has a place in my travel camera bag. This small softbox needs no extra hardware; it just attaches directly around the flash head. It creates a soft light that can easily be used on location and folds up flat for easy transportation. LumiQuest also makes a slightly larger softbox called the LumiQuest SoftBox LTp, which folds flat to the size of a laptop (which is the reason for the LTp name) so you can carry it in the laptop pocket of a camera bag.



**Figure 7.29** The LumiQuest SoftBox attaches easily to the SB-800 and other Speedlights.

LumiQuest makes a great line of small-flash modifiers, including a full range of bounce devices, which create a much softer light by bouncing the light at the subject instead of having you aim the flash directly at them. The company also offers a full gel set, a snoot product, and softboxes of various sizes. All the LumiQuest items attach to the flash head using a Velcro strap called the UltraStrap.

## Honl Photo Light Shapers

When David Honl moved to Istanbul to photograph the Iraq war, he found out rather quickly that trying to haul a studio setup was not going to work. Instead, he started to create snoots made of cardboard to help create the lighting he needed. He later used ballistic nylon to create snoots and flags for his small flash units, securing them with Velcro straps. Now, he heads Honl Photo, which sells small-flash accessories for everyone to use. The Honl snoot was the first small flash accessory I ever purchased, and I still use it. In addition to the snoot that started it all, the Honl Photo line includes a softbox, bounce cards, flags, gel kits, and grids. One of the great things about the products is their ability to

take a beating and still perform flawlessly. The construction is top-notch, and the products will last a long time.

## ExpoImaging Flash Tools

I love ExpoImaging's Rogue line of light modifiers and always have one of the FlashBenders tucked into my camera bag. The Rogue line encompasses three types of accessories.

- **FlashBenders** : The FlashBenders are flexible, shapeable light modifiers made for small-flash units ( [Figure 7.30](#) ). Available in a range of sizes, they attach to the flash with an attached strap and have bendable rods built in to help shape and position the reflective material. You can use FlashBenders as everything from a straight bounce card to a snoot. You can also get a diffusion panel to attach to your FlashBender, turning the whole thing into a small softbox.



**Figure 7.30** A Velcro strap wraps around the flash head to keep the Rogue FlashBender light modifier in place on your Speedlight (here an SB-800).

- **Rogue Grid** : The Rogue Grid is a three-in-one honeycomb grid system that provides three grid patterns: 45 degrees, 25 degrees, and 16 degrees. The honeycomb grids produce a spot of light with some fall-off that you can use to fine-tune where the light strikes the subject. This grid also has a set of gels that are cut to fit inside the grid holder.
- **Rogue Universal Gels** : I'm a sucker for well-designed products and packaging, which is part of why I like the Rogue Universal Gels so much. They are packaged in a handy pouch that lets you get to the color you need quickly, and attaching a gel is just as easy: Position the gel to the front of your flash, bend the tabs to the sides of the flash, and slip on a rubber band to hold it in place ( [Figure 7.31](#) ). Simple, quick, easy, and organized is the perfect combination when you're working with small pieces.



**Figure 7.31** A rubber band just holds the side tabs of a Rogue Flash Gel in place so that the gel covers the whole head of this SB-910 Speedlight.

ExpoImaging recently updated its line of FlashBender products to create lighter versions of each with an improved fastening system. The new versions are just as flexible and sturdy as the originals, but the lighter weight means that they put less stress on your flash. Plus, the new fastener uses a buckle that enables you to cinch the modifier tighter than ever (see [Figure 7.32](#) ).



**Figure 7.32** The new buckle fastener on the Rogue FlashBender allows the modifier to be cinched tight around the flash head, making it more secure than ever.

## Westcott Line

Westcott offers so many different lighting tools that I don't have room to list them all. Basically, the company makes everything you could need to bounce light, diffuse light, and even produce light.

One line that I use quite a bit is Westcott's Rapid Box line of softboxes, which are made to hold a single Speedlight and come with everything you need. I use the 26-inch Rapid Box Octa a lot and recently added the Rapid Box Strip to my lighting kit. If your work requires multiple Speedlights, you might consider the 32-inch Rapid Box Duo, which holds two Speedlights at the same time.

## Final Thoughts

The number of light modifiers available for Speedlights increases every day. Thanks to the popularity of using a small flash, you can find just about any type of light modifier you can imagine.

Whether you use a diffusion panel, umbrella, or soft box, however, you should keep one final, invaluable tool close at hand: gaffer tape. A few pieces can block errant rays of light, and it is a simple, quick, and inexpensive solution to last-minute dilemmas. I keep a small roll of gaffer tape with me at every shoot. A well-placed piece or two can keep the light on the subject and off the background. Think of it as a flexible gobo or flag that you can



attach to the flash or you can tape over a section of the diffuser shaping the light.

## 8. Hold on to Your Flash



NIKON D750 ISO 800 1/13 SEC. F/5.6

Speedlights are designed to work seamlessly on your camera. Just slide the mounting foot into the camera hot shoe, turn the locking lever, and you are ready to go. When you want to use the flash off the camera, however, you need a way to position and aim it exactly where you need it. Planning a good lighting scheme is merely an exercise in frustration if you can't place the lights where you need them. To help you, the market is full of flash holders and devices that enable you to mount your Speedlight just about anywhere, from the simple flash stands that come with your Speedlights to multiuse clamps. Other devices allow you to mount multiple Speedlights together to create a bigger light, and a variety of light stands let you raise your flashes from a few inches off the ground to high overhead.

### Flash Stands

All Speedlights that can be used as remote lights come with a free stand with which you can stand up the flash off the camera. This small piece of plastic is easy to overlook, but you can find it tucked away in the case or bag your flash came in. If you have lost your flash stand, you can purchase one at any good camera store or online. The model you need depends on the flash unit you use.

**Table 8.1** charts the various stands Nikon offers and the

Speedlights with which they are compatible.

	SB-R200	SB-500	SB-600	SB-700	SB-800	SB-900	SB-910
AS-19			X		X		
AS-20	X						
AS-21			X		X	X	X
AS-22			X	X	X		
AS-23		X					

**Table 8.1 Nikon Flash Stands and Compatible Speedlights**

You can find third-party Speedlight stands, as well. Just make sure that the one you choose works with your model of Speedlight.

All these Speedlight stands enable you to stand your Speedlight on any flat surface; [Figure 8.1](#) shows the SB-700 in the AS-22 Speedlight stand, for instance. The top of the flash stand contains a slot ( [Figure 8.2](#) ); slide the foot of the flash in the slot and then turn the locking lever on the flash to keep the flash in the stand. In addition, the stands each have a standard threaded socket on the bottom ( [Figure 8.3](#) ) that allows you to mount them on a tripod, monopod, or larger light stand.



**Figure 8.1** The Nikon SB-700 positioned in the AS-22 Speedlight stand. You can place it on any flat surface and still angle the head to make sure the light goes where you want.



**Figure 8.2** The slot on the top of the AS-22 Speedlight stand is where the SB-700 slides in.





**Figure 8.3** The threaded mounting hole on the bottom of the AS-22 allows you to mount the flash on a larger light stand or tripod easily.

For many years, I attached these Speedlight stands to the top of umbrella brackets so that I could use my flash on a light stand with an umbrella attached. **Figure 8.4** shows this setup with the SB-700 mounted on top of an umbrella bracket using the AS-22 stand. This worked just fine, but there are better methods, including using a

dedicated cold shoe, such as enlight photo's frio V2 (more on these a little later).



**Figure 8.4** I used to mount the SB-700 in an AS-22 Speedlight stand and attach it to the umbrella bracket on top of a light stand.



Now I use the flash stands to place Speedlights on flat surfaces, especially when doing small product photography. The great part is that the flash stand fits neatly into the Speedlight's case and is there if you need it in an emergency.

## **Justin Clamp**

If you need more flexibility than your flash stand offers, reach for Justin—a Justin clamp, that is. It might just be the best, or at least the most versatile, Speedlight holder ever made. Officially named the Manfrotto 175F-1 Spring Clamp with Flash Shoe, the Justin clamp got its popular nickname from the Bogen employee, Justin Stailey, who teamed with legendary photographer Joe McNally to create it. Unlike other clamps that tend to move over time under the weight of a flash unit, this spring clamp holds a Speedlight firmly in place but is also extremely adjustable. These things are great because they allow you to place a Speedlight just about anywhere and can hold more than 4 pounds securely. As you can see in [Figure 8.5](#), you can use this clamp to turn just about anything into a light stand to hold a flash. Specifically, the clamp can attach to any pipe or surface that is 1.6 inch or smaller and can attach to any stand that has a 5/8-inch post.



**Figure 8.5** The Justin clamp, officially known as the Manfrotto 175F-1 with Flash Shoe, enables you to turn just about anything into a light stand for your flash.

Manfrotto offers two variations of the clamp: the Manfrotto 175 Spring Clamp and the Manfrotto 175F-1 Spring Clamp with Flash Shoe. Make sure to get the version with the flash shoe because the one without does not offer any way to attach the flash to the clamp. You'll notice in [Figure 8.6](#) that I replaced the clamp's standard cold shoe with a frio cold shoe. The mounting feet of my SB-900 and SB-910 are slightly thicker than the mounting feet of the older Speedlights and don't fit into the original cold shoe that came with the Justin clamp. Manfrotto has since changed the cold

shoe on the clamp, so this is no longer an issue; however, some older clamps are still out there in the market, so SB-900 and SB-910 owners be aware.



**Figure 8.6** The Nikon SB-700 mounts easily in the Justin clamp (Manfrotto 175F-1) with a frio cold shoe.

I currently have three Justin clamps in my lighting kit, and they enable me to place my lights just about anywhere. The Manfrotto 175F-1 Spring Clamp with Flash Shoe retails for roughly \$60, a small price to pay for the ability to position a light in just the right place.

## Light Stands

Light stands all do the same thing—hold the flash and light modifier where you want them to light the scene—but come in several styles that each position the light a little differently. The three types of light stands I prefer and use are basic stands, C-stands, and booms. Take a closer look at each in the sections that follow.

## Basic Light Stands

Basic light stands come in many sizes, but they all hold a flash straight up off the ground on an extendable center column. Three legs form the stand's base, and the center column is composed of collapsible sections and topped with a standard stud that usually has a threaded tip (and perhaps a cap screwed into place). Some stands raise your flash only a foot or two; others tower way into the sky. Prices vary almost as much, from less than \$20 to more than \$100 depending on the materials used, the stand's maximum height, and its construction. Here are some things to look for when picking out a light stand:

- **Weight** : The weight of the light stand is important, especially if you plan on carrying it along for location shoots. A couple of 4.2-pound heavy-duty light stands begin to weigh a lot more after you carry them for 15 minutes, especially when combined with some light modifiers, a couple of Speedlights, cameras, and lenses. I have a pair of very light stands that I take when I know I have a long walk to a location. Usually the lighter the stand, however, the less it can hold and the shorter the maximum height.
- **Maximum load** : The maximum load is how much weight the stand can support. The good thing here is that Speedlights and the modifiers built for them don't weigh much at all compared to the much heavier studio strobes for which many light stands are built. A basic light stand that can support around 7 pounds is plenty when it comes to getting your Speedlights up in the air.
- **Minimum height** : This is the lowest that the light stand can go, which might not seem important until you try to place a Speedlight behind your subject who is sitting on the floor or at eye level with a child.
- **Maximum height** : How high can you go with your light? I like to have at least 8 feet of height, which allows me to place the light above the subject and then angle it down to create a more natural light. I do have some light stands that

reach up to more than 9 feet, but their minimum height is higher as well.

- **Closed length** : Some light stands are built so that you can fold the support legs back over the center column, making them compact. That is huge bonus if you need to pack them away for storage or travel.
- **Air cushioned** : The center column of an air-cushioned light stand closes down slowly, pushing the air out the tube as it lowers. This feature helps keep your gear safe if the section locks comes loose and the light stand lowers unexpectedly. I use an air-cushioned light stand ( [Figure 8.7](#) ) for my main light to ensure my Speedlight and modifier don't crash to the ground if the sections come loose or I forget to tighten it after a readjustment.



**Figure 8.7** This air-cushioned light stand looks just like a regular light stand but lets down the attached Wescott Rapid Box strip smoothly and slowly when you lower the stand (or it lowers itself unexpectedly).

- **Casters** : You can get optional casters for some light stands. These will allow you to move the light stand easily but only on smooth floors. If you are working in a studio setup, casters might be useful. When you're on location, they add weight and bulk to your lighting kit and might be more hindrance than help depending on the flooring (or ground).

When you use a light stand, make sure it doesn't fall over. Light stands can become top heavy with large modifiers attached.

Outdoors an errant gust of wind can catch an umbrella and send the whole thing crashing to the ground or into your model. To weigh them down, you can buy sandbags designed to go over the legs of a light stand (or make your own). The 15-pound sandbag in **Figure 8.8** helps hold the light stand and umbrella in place for outdoor shooting.



**Figure 8.8** Weight on the leg of the light stand helps keep the stand in place, even outside with a large umbrella as a light modifier.

## C-Stands

C-stands got their start in the movie industry, where they are still



used to hold light-shaping tools in front of light sources. Big and heavy, these stands have a grip head and arm that enable you to position lights and modifiers easily, while at the same time keeping the column and legs out of the shot. Although easy to position, they're not exactly portable. These stands can weigh more than 15 pounds and extend over 4 feet even with the legs folded so the stand can lay flat. The C-stand that I use is made by Mathews Studio Equipment and is built like a tank. You can see the size difference between it and a regular light stand in [Figure 8.9](#) .



**Figure 8.9** Compared to a basic light stand (right), a C-stand (left) is much bigger and heavier.

C-stands do allow you a lot more flexibility in placing a light or light modifier exactly where you want it. The downside is that the stand is bulky and heavy, making it difficult to drag around on

location without help. Another way to place the lights and modifiers is to use a boom.

## Booms

Available in a variety of lengths and maximum load capacities, a boom is an arm that attaches to a light stand to hold a light out and over the subject. A boom comes with a tilt bracket with which you attach it to the top of a light stand and position the boom arm. The key to using a boom is making sure you have a counter weight on the back end so that the arm is balanced and the light and modifier on the end don't tip over. I like the Photoflex adjustable boom arm that breaks down into three pieces allowing for easy transport but holds up to 10 pounds more than 5 feet from the light stand ( [Figure 8.10](#) ).



**Figure 8.10** This Photoflex boom can extend 5 feet and support

up to 10 pounds. Here it holds a Westcott Rapid Box and an SB-910.

For a lightweight, homemade boom, you can purchase a basic extendable painter's pole. Add an assistant to hold it, as well as a \$20 Kacey pole adapter to mount the flash and modifiers on the pole, and you're ready to go.

## **Brackets**

A bracket is a piece of gear that goes between your light stand and Speedlight to provide more control over where the light can be pointed as well as the ability to use light modifiers, such as umbrellas. The market is full of brackets in a huge variety of sizes, materials, and prices; some light modifiers made for small flashes even come with brackets attached.

The brackets all have a connector that attaches to the top of a light stand, a hinge that allows the top piece to be angled, a cold shoe to which the flash attaches, and a way to attach a light modifier. The Westcott Rapid Box, for example, comes with a bracket that attaches to the softbox, as shown in [Figure 8.11](#).



**Figure 8.11** The bracket of the Westcott Rapid Box allows you to attach a Speedlight and mount the whole thing on a light stand.

## Umbrella Brackets

To use an umbrella with your Speedlight, you need to use an umbrella bracket. These are really simple; an umbrella bracket has a bottom piece with which you mount it on a light stand, a locking hinge with which you to control the angle of the light, a hole to hold the umbrella shaft, and a cold shoe to hold the flash. Some umbrella brackets replace the permanent cold shoe with a female socket, which I prefer so I can use a frio cold shoe. [Figure 8.12](#) shows my basic setup; the SB-700 is mounted in a frio cold shoe on the top of an umbrella bracket. The shaft of the umbrella goes through the hole on the bracket below the flash, and the hinge

allows me to angle the flash and umbrella up and down.



**Figure 8.12** This SB-700 is mounted in a friio cold shoe on an umbrella bracket.

## Cold Shoes

Unlike hot shoes, which can both hold and trigger a flash ( [Figure 8.13](#) ), cold shoes just hold the flash, like the Speedlight stand that came with your unit. Cold shoes come in a variety of materials from molded plastic to machined metal. When using a metal cold shoe, you need to be careful that the metal contacts on the bottom of the Speedlight foot don't contact the metal of the cold shoe. You can use a small piece of gaffer tape on the cold shoe so that the contacts don't touch the metal, or you can use a plastic cold shoe.



**Figure 8.13** The hot shoe on the SC-28 TTL cord fires the flash when it gets a signal from the camera attached to the other end of the cord.

My favorite cold shoe is enlight photo's frio V2 cold shoe, which allows you to quickly and securely mount your Speedlights to a light stand or bracket. The Speedlight slides in and the plastic locking piece keeps the flash in place. To remove the unit, simply press down on the locking piece and slide the flash out. I know that if I slide the Speedlight into the frio, the flash isn't going to fall out or come loose. The bottom of the frio has a threaded metal socket that secures it to the light stand or any bracket. I recently replaced all the cold shoes on my Justin clamps with the frio V2 ( [Figure 8.14](#) ).



**Figure 8.14** The frio V2 cold shoe on the Justin clamp. The flash shoe slides into the frio, which locks it in place.

## Multiple Flash Brackets

Sometimes you will want to use more than one flash at the same location. For this job, you need one of the really cool flash brackets available that can hold two to four Speedlights in a group ( [Figure 8.15](#) ). Grouping the flashes together produces the effect of one bigger light source. The Lastolite Joe McNally Triflash is probably the best version on the market because it allows each of the three cold shoes to rotate, enabling you to position your Speedlights individually and aim each one's IR receiver in at the Commander ( [Figure 8.16](#) ).





**Figure 8.15** This multiple flash bracket has three cold shoes allowing you to mount three Speedlights with a hole in the middle for an umbrella shaft.



**Figure 8.16** This multiple flash bracket has three SB-800s attached and is mounted in a large umbrella. All three of the Speedlights are set the same channel and group so that they all fire at the same time and have the same output level.

## Final Thoughts

Nothing is more frustrating than having an idea for lighting an image and then not being able to position the lights exactly the

way you want them. The answer to this dilemma lies in the many options available for setting up off-camera flashes. Unfortunately, the choices can be overwhelming, especially when you're just starting out.

A good place to begin is with a basic light stand; then you can add an umbrella bracket (along with an umbrella) or a small soft box and bracket. That will allow you to set up a main light off the camera. Adding more stands or Justin clamps will enable you to build bigger and more complicated scenes. You don't need to go out and buy all the gear at one time; build your collection as your skill and needs grow. The light stands, brackets, and clamps can all last a long time if you take care of them.

The gear in this chapter is all equipment that I have purchased over the years as I needed it. I started with a couple of light stands and umbrella brackets and added a few Justin clamps. I then added a boom, a couple more Justin clamps, a C-stand, and a multiple flash bracket as I need them for specific jobs. This allowed me to grow the lighting over time without having to spend a lot of money all at once.



NIKON D4 ISO 100 1/250 SEC. F/8

# III: Creative Lighting System



NIKON D750 ISO 400 1/50 SEC. F/8

This section deals with the basics of the Creative Lighting System, from the flash modes to sync speeds. Here you'll learn which flashes support which features, such as the Flash Value Lock (FV Lock), intelligent Through the Lens (i-TTL) metering, and Advanced Wireless Lighting, as well as how to use them. It also introduces SU-4 mode, which is available on select Speedlights and demonstrates using this mode to mix radio triggers with the line-of-sight triggering.

**CHAPTER 9 Flash Fundamentals and the Creative Lighting System**

**CHAPTER 10 Advanced Wireless Lighting**

**CHAPTER 11 Off-Camera Flash Triggers**

## 9. Flash Fundamentals and the Creative Lighting System



NIKON D4 ISO 400 1/125 SEC. F/3.2

In 2004, Nikon released the SB-800 Speedlight and introduced the world to the Nikon Creative Lighting System (CLS for short). The system was a breakthrough, allowing not only remote triggering and control of off-camera flashes but also advanced Through The Lens (TTL) metering, High-Speed Sync, and Flash Value Lock (FV Lock). The Creative Lighting System refers to the entire system of flashes and cameras that use this technology to produce images that are better lit. This chapter describes how these features work and how to start using them in your photography.

### Guide Numbers

The power of a Speedlight is described using a *Guide Number* (GN). This is simply the amount of light the flash will produce at a given ISO and zoom position. The higher the GN is, the more powerful the flash. The Guide Number is most useful when working with a flash in Manual mode because if you have the ISO, the GN, and the distance between the subject and the flash, you can work out the correct aperture to get a proper exposure.

The Guide Number changes depending on the camera's image area (FX or DX), the illumination pattern, the zoom head position, the ISO setting on the camera, and the flash output level. You can find out the GN for all the variables in the manual that came with your Speedlight. It is not the most entertaining reading, and in my real-world experience using the Nikon CLS, I have never needed the GN or used it to determine a setting. It is interesting to see how powerful each of the Speedlights is, but the LCD on the back of most flashes will show you exactly how far the light will reach. (The SB-300, SB-400, and SB-500, which don't have an LCD, are the exceptions.) In addition, the GN flash mode on the SB-700, SB-800, SB-900, and SB-910 enables you to enter the distance between the subject and the camera, but I'll get to that a little later in this chapter.

## Flash Modes

You can use the Nikon Speedlights in a number of different flash modes, each of which controls the output of the flash in a different way. Not all the Speedlights have all the modes, however. You can easily change the flash mode on your Speedlight by pressing the Mode button on the SB-900, SB-910 ( [Figure 9.1](#) ), SB-800, and SB-600. On the SB-700, you use the slide on the flash's back-left side to pick between TTL, Manual, and GN modes. The SB-500 can be used in TTL, which is the default, and Manual mode, which is controlled by a setting on the camera, not on the flash. The sections that follow detail each of the flash modes.





**Figure 9.1** You can easily change the mode of the flash using the Mode button. Every time you press the button, it cycles through the available choices.

#### Note

The modes available for the built-in flash will be dependent on the camera model and are set via a menu on the camera. Check your camera manual for specifics.



Your Speedlight's most advanced and automatic mode, TTL mode actually measures the light coming in through the lens and adjusts the flash accordingly. This technology predates digital photography and was designed for traditional cameras that measured the light reflecting off the film plane. That approach doesn't work as well with digital cameras because the light doesn't reflect off the camera's sensor in the same way. With the newer TTL mode, at times referred to as *intelligent TTL* or *i-TTL*, the flash fires a pre-flash right before the photo is taken. The camera then measures the pre-flash and uses the information it gathers to adjust the actual flash output. In [Figure 9.2](#), you can see the TTL mode set on the SB-910, and I'll discuss i-TTL mode, an important part of CLS, later in the chapter.



**Figure 9.2** This SB-910 Speedlight is set to TTL Balanced with FP Sync turned on. The flash can illuminate subjects between 4.4 feet and 35 feet using the current settings of ISO 1600 and f/2.8.

## Auto-Aperture/Auto-Flash (A)

Auto-Aperture mode is available on the SB-800, SB-900, and SB-910 ( [Figure 9.3](#) ). In this mode, a sensor on the flash actually reads the light bouncing off the subject when the flash fires, as opposed to the camera reading the light through the lens. The flash itself determines the flash output and gets only the aperture and ISO information from the camera.



**Figure 9.3** This SB-910 Speedlight is in the Auto-Aperture mode. The double lightning bolts in the top-left corner of the LCD let you know the flash will fire a pre-flash to help with the power setting. The Aperture and A symbol indicate the flash mode, and the FP symbol shows that the flash can use shutter

speeds over 1/250 second.

Auto-Aperture mode is actually four modes in one. For instance, you can set it to be the Auto-Flash mode, in which the camera does not communicate any information to the flash and you have to enter the aperture directly into the flash. The four different settings that you can specify for the Auto-Aperture mode are as follows:

- **Auto-Aperture flash with pre-flash** : The flash gets the aperture information from the camera and fires a set of pre-flashes to help determine the power output.
- **Auto-Aperture flash without pre-flash** : The flash gets the aperture information from the camera but does not fire any pre-flashes.
- **Non-TTL Auto-Flash with pre-flash** : You enter the aperture information into the flash, and the flash fires a series of pre-flashes to help with the right power output.
- **Non-TTL Auto-Flash without pre-flash** : You enter the aperture information into the flash, and it does not fire any pre-flashes.

On the SB-900 and SB-910 you choose the flavor of Auto-Aperture mode in the menu ( [Figure 9.4](#) ).



**Figure 9.4** This SB-910 shows the Auto-Aperture mode menu choices.

Auto-Aperture mode can be more accurate in scenes that have a large tonal range and that you are recomposing between shots. In

reality, however, the i-TTL modes on the Speedlights do as good of a job with less work.

## Guide Number (GN)

This mode sets the flash power based on the aperture that the camera is set to and the distance of the camera from the subject that you set on the flash. This mode does not work properly unless the flash head is facing forward at 90 degrees; if the flash is in any angled position, it won't work. If you are in GN mode and angle the flash head up or to either side, the mode automatically changes to Auto-Aperture mode.

For GN mode to work effectively, you need to know the distance from the flash to the subject, which makes this mode most useful when photographing static subjects. In this mode, you first set the desired aperture on the camera. Next, choose feet or meters for the unit of distance by pressing the ft or m button on the flash. Finally, rotate the dial to the desired distance, and you are good to go. If you now change the aperture, the output won't change unless you also change the distance setting on the flash or physically change the distance from the flash to the subject. For example, the following two images were taken with the camera locked into a tripod and the distance from the camera to the subject measured. From the camera to the orchid is 4 feet, which is the value I entered in the flash. As you can see from [Figures 9.5](#) and [9.6](#), the exposure is the same but the images have a very different depth of field. [Figures 9.7](#) and [9.8](#) illustrate the settings on the flash unit and the physical setup for the orchid shot.





NIKON D4 ISO 1600 1/250 SEC. F/2.8

**Figure 9.5** This orchid was photographed at a shallow depth of field using an aperture of  $f/2.8$ , illuminated by the SB-910 on the camera.



NIKON D4 ISO 1600 1/250 SEC. F/16

**Figure 9.6** The same orchid from Figure 9.6 was photographed at a deep depth of field using an aperture of  $f/16$  and illuminated by the SB-910 on the camera.



**Figure 9.7** This SB-910 is in GN mode. Pressing the ft button and then rotating the dial adjusts the power of the flash.



**Figure 9.8** Here is the behind-the-scenes setup for the photos in [Figures 9.5](#) and [9.6](#) . I measured the distance between the subject and the camera and entered that information into the flash.

## Manual (M)

In Manual mode you can set the output power, the aperture, the flash head zoom, and the ISO. The power level on the Speedlights is shown as a ratio; 1/1 is full power, and 1/128 is the lowest power possible. As you adjust any of the settings, the flash will show you the distance it needs to be from the subject for a proper exposure. You can see the Manual mode on the back of the SB-910 in [Figure 9.9](#) with the power of the flash set to 1/4 power.



**Figure 9.9** This SB-910 is set to Manual mode. The *FP* next to the *M* means that the FP Sync is turned on and the camera can use shutter speeds higher than 1/250 second. The power of the flash is set to 1/4.

When you use a Speedlight in Manual mode, the flash output doesn't change from frame to frame when allowed to fully recycle. If you do not allow the flash enough time to recycle, the output will not stay consistent, especially when using full (1/1) power. If you are shooting a subject that is always the same distance from the flash, this mode can be useful. For example, you can use Manual mode to shoot product photography or portraits, for which the subject is always in the same spot, and the results will be uniform and consistent. Manual mode allows you more control over the output of the flash, which is useful when TTL mode is having issues. For example, if you are photographing a subject that has a lot of white, the light from the pre-flash reflected off the subject will set the power to render the white areas as gray. With Manual mode, you can set the power, and it won't change even if the subject does. In [Figure 9.10](#), I wanted to make sure that the amount of light the flash put out was enough to illuminate the couple but not so much that it destroyed the feel of the scene. Because I didn't have a lot of time to set up with the couple, I had another guest stand in the spot and took a few test shots. Based on these, I set the SB-800 to Manual 1/8 power, which worked perfectly.



NIKON 700 ISO 500 1/50 SEC. F/2.8

**Figure 9.10** The happy couple cuts the cake, while I snap the shutter. Using Manual mode allowed me to control the power of the flash so that the scene was rendered how I wanted it.

It is also possible to get just a little more power out of the flash units when in Manual mode because the flash does not fire a pre-flash as it does in TTL mode. This tiny smidgen of power can actually make a difference when you need to get all the power from a Speedlight.

When the flash is mounted in the camera's hot shoe, the ISO, aperture, and zoom are all set automatically from the camera, but when the flash is mounted off the camera, you need to adjust those settings manually. Changing the settings on the Speedlight is straightforward for the power, aperture, and zoom position but is a little more hidden when it comes to the ISO. To change the ISO, you need to open the flash menu and navigate to the ISO option. This setting will then be the default ISO for the Speedlight until



you change it. Powering the flash off or changing the mode will not change the ISO.

## Repeating (RPT)

In Repeating (RPT) flash mode, the Speedlight fires multiple times during the exposure to create a stroboscopic effect. When the flash is used this way, the resulting image usually looks as though multiple exposures were taken in quick succession. This mode is available on the SB-800, SB-900, and SB-910 only. To use Repeating mode successfully, you need to factor in three things.

- **Low ambient light** : A dimly lit environment is best because you need a longer shutter speed to allow the flash to fire multiple times. This longer shutter speed lets in more ambient light, which can affect the exposure as well as the feel and mood of the image. Using a black background helps make the subjects pop.
- **Fast-moving subject** : The subject needs to be moving during the exposure, and the faster the subject is moving, the more the effect works. It is also helpful if the subject is moving through the frame from one side to the other. The flash power is calculated on distance, and if the subject is moving toward you or away from you, the exposures will be off.
- **Lots of power** : The flash needs to fire in quick succession for this to work, which means lots of power. Use fresh, fully charged batteries and have extras on hand. Using the flash in this mode really sucks the power out of the batteries.

When you use the flash in Repeating mode, you need to set the following on the flash:

- **Flash output level** : This is the power level of the flash used for each of the flashes during the exposure. You adjust it the same way as for manual power but can set it between 1/8 power and 1/128 power only. The power setting will also affect the Frequency and Times settings.
- **Frequency (Hz)** : This is just a fancy name for the number of times the flash fires per second.
- **Times** : This is how many times the flash fires during the exposure.

Setting the correct exposure for Repeating mode takes some math, some experimentation, and a lot of patience. The first thing to do is



determine how many times you want the flash to fire during the exposure. You need to specify both the Times and Frequency settings as well as the power and then work out the exposure and set the ISO, shutter speed, and aperture on the camera. For example, if I want the flash to fire four times during the exposure and I am using a shutter speed of 1 second, I would set Times to 4 and Frequency to 4. The shutter speed you need is equal to Times divided by Frequency. If you use a shutter speed that is shorter than this, the flash will not have enough time to fire the number of times you specified. Now when I adjust the power on the flash, it shows me the distance that the flash will reach at the aperture and ISO set. **Figures 9.11** and **9.12** illustrate the settings and a sample result.



**Figure 9.11** For this SB-910 in Repeating mode, the power of the flash is set to 1/8, and the flash will fire four times at 4 Hz, which equals four flashes in a 1-second exposure.



NIKON D750 ISO 400 1 SEC. F/2.8

**Figure 9.12** The subject moved across the frame during the 1-second shutter speed, and the flash fired four times, creating the stroboscopic effect.

## Flash Value Lock

The Flash Value Lock (FV Lock) setting on the camera controls the way the flash acts when taking multiple photos. When the FV Lock is turned on, the camera fires a pre-flash and then uses that information for all the subsequent photos. It doesn't fire another pre-flash until you turn off the FV Lock. This setting essentially locks the flashes power at a specified level until you turn off the FV Lock.

It is important to note that this setting is not on the flash but is controlled on the camera, and not all the cameras in the Nikon lineup have this function. To use it, simply set the FV Lock to one of the programmable buttons using the Custom Setting menu (either the FUNC button, Preview button, or AE-L/AF-L button) and choose FV Lock ( [Figure 9.13](#) ).



**Figure 9.13** On the D750, you can use the f3 setting in the Custom Setting menu to assign the FV Lock to the Preview button.

The FV Lock stays active until you unlock it by pressing the button again or the camera is turned off. It also disengages when the metering system turns off, which on many cameras is after just a few seconds. The FV Lock icon in the viewfinder lets you know that the FV Lock is active; when it disappears, the feature is inactive.

## Recomposing Your Image

The FV Lock allows you to change the composition while keeping the proper flash value to correctly expose your subject, especially when the subject is off-center. When you use a Speedlight or the built-in flash, the flash metering always meters the center of the frame, which is great if your subject is in the center of the frame but not so great if the subject is off to the side. This is where using the FV Lock comes in really handy:

1. Attach a CLS-compatible Speedlight to your camera's hot shoe, or raise the built-in flash.
2. With the subject positioned in the center of the frame, press the shutter release button halfway down to achieve focus.
3. Press the selected FV Lock button. The Speedlight or built-in flash will emit a pre-flash to determine the appropriate flash level. The flash output will be locked at this level.

4. Recompose the scene.

5. Press the shutter-release button to take the shot.

You can take additional pictures without releasing the FV Lock (the same flash exposure will be used in all the photos).

6. When done with the FV Lock, press the selected button again to release it.

In **Figure 9.14** , the subject is in the center of the frame and lit properly by the flash. By engaging the FV Lock, I can now recompose the image (as shown in **Figure 9.15** ) and still get the proper exposure.



NIKON D4 ISO 200 1/250 SEC. F/5.6

**Figure 9.14** I photographed Jennifer in the darkened studio using the SB-910 on my camera. This is the photo with her in the middle of the frame properly lit. Next, I turned the FV Lock on and moved to my left to recompose the image.



NIKON D4 ISO 200 1/250 SEC. F/5.6

**Figure 9.15** Using the FV Lock, I was able to recompose the scene and move Jennifer off to the side while keeping her properly lit.

## A Photo Series with Consistent Lighting

Because the FV Lock function locks the flash output at a consistent level, you can take a series of photos that all have the same exposure and look, even if the subjects are different.

When using the FV Lock to take a series of photos like this, you need to make sure that the FV Lock function stays activated for a longer period of time. The best way to do this is to keep the shutter release button pressed halfway down. This keeps the focus engaged and the metering system working (when the light meter times out, the FV Lock turns off). When working a red-carpet event, there are times when turning on the FV Lock is essential to getting the best results. In [Figures 9.16](#) and [9.17](#), the FV Lock was turned on so that the flash power was the same for both images, creating images that are consistent.





NIKON D4 ISO 500 1/60 SEC. F/5.6

**Figure 9.16** Photographing talent during a press event using the FV Lock creates consistently lit images.



NIKON D4 ISO 500 1/60 SEC. F/5.6

**Figure 9.17** The FV Lock allows for the same lighting even when the subjects change.



## Avoiding Blinkers

When you use the Speedlights on your camera in TTL mode, the Speedlight fires a pre-flash to determine the actual power that the flash will use. Some subjects are sensitive to this pre-flash, and it can cause an involuntary blink. This results in a subject with closed eyes when you take the photo.

You can use the FV Lock to set the flash power and then take the photo (or photos) a few seconds later, which will cut down on the subject blinking.

## Intelligent TTL Metering

The Creative Lighting System allows for intelligent Through The Lens (i-TTL) metering of the flash power. The camera reads the amount of light present in the scene as seen through the lens and then controls the amount of light produced by the flash to create a better-lit image.

This system uses the flash's ability to fire a pre-flash to determine how much illumination is needed in the final exposure. The camera meters the light reflected back at the camera during the pre-flash to get a more accurate reading of the scene and then adjusts the output of the flash during the exposure. This all happens as you press the shutter release button in the following order:

1. The camera opens the lens as wide as possible.
2. The flash fires a pre-flash.
3. The camera reads the light in the scene.
4. The camera sets the power for the flash.
5. The camera sets the aperture depending on the exposure mode.
6. The shutter opens.
7. The flash fires.
8. The shutter closes.

This mode usually provides good results, especially when taking photos for which you don't have a lot of time to set up. I took the photo in [Figure 9.18](#) while sitting and let the flash determine the amount of light to use. The pre-flash fired and set the exposure, and the resulting image looks natural.



NIKON D2X ISO 500 1/60 SEC. F/2.8

**Figure 9.18** A photo of my friend Allen while out to dinner was shot using the i-TTL setting, resulting in a natural-looking photo.

Most of the time you will never even notice that pre-flash, but you can set your camera so that you can see it fire. If you follow these steps, you will see the pre-flash fire at the beginning of the exposure and a second flash at the end of the exposure:

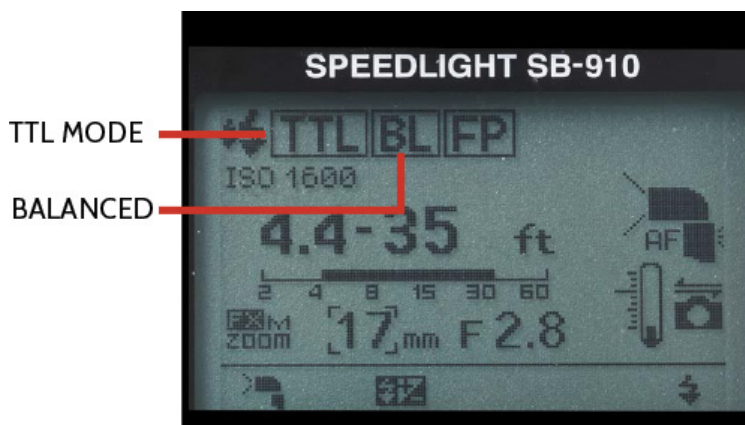
1. Set the camera to Manual Exposure mode.
2. Set the shutter speed to 1 second.
3. Set the flash to fire in Rear Curtain mode.
4. Press the shutter release button.

You will see a flash as you press the button and then a second flash one second later at the end of the exposure. The first flash is that pre-flash used to determine the power setting, and the second flash is the main illuminating burst of light for the scene.

The following are two types of TTL modes available on the current CLS Speedlights ( [Figure 9.19](#) ):

- **TTL BL (Through The Lens Balanced )**: The camera looks at all the light in the scene and tries to balance the light from the flash with the existing light to create a more natural result. This works only when you have the exposure metering mode on the camera set to Matrix Metering.
- **TTL (Through The Lens )**: A regular TTL mode, this is used when the camera metering system is set to Center-Weighted

metering or Spot metering, and the camera looks only at the subject rather than the entire scene.



**Figure 9.19** This SB-910 shows the TTL and TTL BL modes on the LCD.

All CLS-compatible cameras can use these modes when combined with any of the CLS-compatible Speedlights.

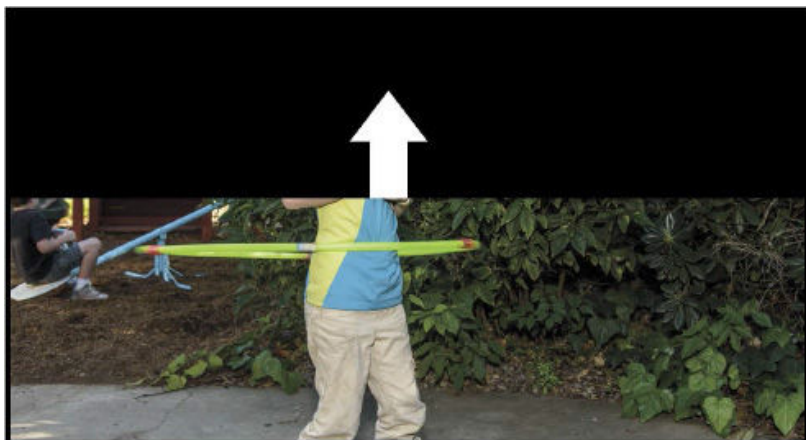
## Sync Speed and High-Speed Sync

The sync speed of a camera is the fastest shutter speed that you can use that still allows the flash to fire and illuminate the entire scene. For this to make sense, you need to understand what actually happens when you press the shutter release button, especially at the higher shutter speeds.

1. You press the shutter release button.
2. The front shutter opens and allows light to reach the sensor.
3. The shutter stays open the amount of time determined by the shutter speed setting.
4. The rear shutter closes.

For the light from the flash to light up the whole scene, the flash needs to fire after the first shutter is fully open and before the second (rear) shutter starts to close ( [Figure 9.20](#) ). The maximum shutter speed you can use is usually 1/200 second or 1/250 second, depending on the camera. If you use a shutter speed faster than this, then the rear shutter will start to close before the front shutter has opened all the way, and you end up with an area that the flash illumination does not reach and a black bar on the bottom of your image. Because the camera and the flash talk to each other, the camera will not allow you to use shutter speeds

higher than the sync mode set in the camera's menu system. For example, if I have the top sync speed set to 1/250 second, then I will not be able to use a shutter speed higher than 1/250 second with a Speedlight in the hot shoe.



**Figure 9.20** When the shutter release button is pressed all the way down, the first shutter moves up and out of the way, the flash fires when the sensor is all the way open, and then the rear shutter closes.

The High-Speed Sync capability in the CLS allows you to use shutter speeds higher than 1/200 second and still get a proper exposure with the flash. For this to work properly, the Speedlight fires a series of flashes as the front and rear shutters move across the frame properly exposing the entire scene to the light from the flash.

Using this capability puts a huge drain on the battery because the flash needs to fire multiple times in quick succession. To the naked eye it just looks as if the flash fires once. In reality, however, not only does the Speedlight need to fire multiple times, but also the output needs to be the same each time or the image will be incorrectly exposed. This does put a much higher drain on the Speedlight batteries and is not available on all camera bodies in the Nikon lineup.

To set up the flash for High-Speed Sync, you need to set the camera to use the Auto FP mode. This is done in the Flash Speed Sync setting in the camera's Custom Setting menu ( [Figure 9.21](#) ). If the camera supports the Auto FP mode, you will see that as an option in the menu. It will show the top regular sync speed of 1/250, and then it will have a choice that looks like 1/250 (Auto FP). If you select this mode, the camera will use the High-Speed Sync when the shutter speed is over 1/250 second.



**Figure 9.21** The e1 Flash Sync Speed menu setting on the D750 lets you set the Auto FP mode to shutter speeds higher than 1/200 second or 1/250 second.

Being able to use faster shutter speeds allows you to use your



Speedlight as a fill light in bright lights. For example, you can set the shutter speed to underexpose the scene and then use the Speedlight to properly expose the subject. In [Figure 9.22](#) I used a fast shutter speed, 1/500, to underexpose the whole scene and then added the light from the Speedlight to make the subject stand out. This allowed me to photograph with the sun behind the subject without getting a silhouette.



NIKON D2X ISO 200 1/500 SEC. F/4.0

**Figure 9.22** Photographing Tim in the bright afternoon sunlight needed a fast shutter speed to underexpose the background. Tim is lit by the Speedlight off to the camera's right.

## Wide-Area AF-Assist Illuminator

Focusing in low-light situations can be really tough. Some of the Nikon cameras come with an Auto-Focus assist lamp that puts a bright white light on the subject to help the camera's auto-focus



work in low light. The SB-600, SB-700, SB-800, SB-900, and SB-910 have a built in AF-Assist Illuminator that works well in helping the camera's auto-focus lock on to a subject. The Speedlight emits a red light that the camera then uses to achieve focus. This light is emitted automatically in low light, but you need to have the proper focus mode set on your camera for it to work correctly.

The most important factor when using the AF-assist illuminator is that the focus mode on the camera needs to be set to AF-S, which stands for Auto-Focus Single Servo. This is the mode for shooting static subjects, as once focus is achieved, the camera will not change focus until you refocus. For example, if you are in a low-light location and want to take a photo, switch the focus mode to AF-S and, with the Speedlight mounted in the hot shoe of the camera, press the shutter release button halfway down. The Speedlight will emit a red light that the camera will then use to help it focus. Once the focus is set, it will not change unless you take a photo or take the pressure off the shutter release button.

There is no way to use the AF-C with this function, so if the subject is moving, you will need to either shoot quickly after achieving focus or continually press and release the shutter button halfway down to engage the AF-Assist.

To get the wide coverage, the SB-910 actually has multiple AF-Assist lamps on the front of the flash and picks which one to use depending on the focus point selected and the camera. As you can see in [Figure 9.23](#) , the lamp comes on when the shutter release button is pressed halfway down in low light.



**Figure 9.23** One of the AF-Assist lamps is illuminated on this SB-910. The light it produces lasts only a second or two but allows the camera to achieve focus.

You need to be aware of a second factor when it comes to the AF-Assist: Depending on the camera model, not all the focus points will work with this feature. The best bet is to use the center focus point for critical work and check your camera manual for which focus points work with the AF-Assist illuminator with your camera.

## **Flash Color Information Communication**

The color of the light produced by the Speedlights can vary depending on the power level of the flash, and while this change in color can be rather small, it can affect the color in your images. The Nikon Speedlights can communicate the flash's light to the camera for more consistent color automatically when the Speedlight is on the camera and the White Balance is set to Auto.

There is second part of the Flash Color Information Communication feature of CLS that comes into play when you use one of the Nikon color correction gels or filters on the SB-700, SB-900, or SB-910. For the feature to work properly, you need to use one of the supplied color correcting filters that came with the Speedlight, and be sure that the White Balance setting on the camera is set to Auto or Flash. There are sensors on the Speedlight that read which filter is attached and send that information to the camera, which then automatically adjusts the white balance ( [Figure 9.24](#) ).

THESE CONTACTS READ THE  
COLOR OF THE FILTER



**Figure 9.24** The contacts on the underside of the flash head can read which of the Nikon-supplied filters or gels are attached to the flash head and send that color information to the camera to correctly set the white balance.

## Final Thoughts

The Nikon Creative Lighting System is a collection of different flash functions all grouped together under the CLS name. The functions covered in this chapter really do make it easier to get better-lit images with the flash on your camera. I have found that the i-TTL BL mode creates a well-lit image without me having to worry about it much, and I often find myself using the AF-Illuminator to help when shooting in low light. There is one more feature of the CLS not covered in this chapter, which is the ability to control off-camera flashes. For more information on this, continue to the next chapter.

## 10. Advanced Wireless Lighting



NIKON D4 ISO 100 1/250 SEC. F/4.5

Advanced Wireless Lighting (AWL) is the most exciting and useful feature of the Creative Lighting System (CLS). It is also the most complicated, especially when you're just starting out, so it deserves its own chapter. AWL enables you to control the mode and power of an unlimited number of off-camera flashes right from your camera. In addition, with AWL you can assign the remote flashes to a maximum of three groups and control the mode and power for each group independently of the other groups. You can also decide whether you want the flash on the camera to add any light to the scene or just act as a Commander for the remote flashes. This chapter covers setting up both the Remote and Commander modes on the Speedlights and how to use the built-in flash as a Commander when possible.

### The Basics of Off-Camera Flash with AWL

The Nikon Creative Lighting System allows you to use Speedlights in either Remote or Commander mode. The Commander flash controls the remote flashes, allowing you to trigger them right from the camera. The whole system uses a line-of-sight optical receiver on the remotes that sees the light from the Commander ( [Figure 10.1](#) ). For AWL to work properly, you need to set up at least one off-camera flash as a remote and use another Speedlight,

the SU-800 Commander unit, or the built-in flash as the Commander. When positioning remote flashes to illuminate a scene, make sure that the small wireless triggering sensor on the remote flash is positioned to see the Commander.



NIKON D750 ISO 400 1/250 SEC. F/5.6

**Figure 10.1** AWL allows you to quickly set up off-camera flashes and trigger them from the camera using a Commander unit. Here I used a single off-camera flash in a softbox triggered from the camera using the SU-800. You can see the flash off to the right, as well as the final photo (insert).

You can set Speedlights to communicate via one of three channels (1 to 4), so make sure your remote and Commander units are set to the same channel. Having a choice of channels allows multiple photographers to work in close proximity without triggering each other's flash units. You also can set your remotes to one of three groups (A, B, or C) and then customize each group's power settings via the Commander, although the lower-end Speedlights do have some limitations as to which groups and channels they can use.

### Note

In the past, the terms Master Flash and Slave Flash were used to describe the Commander and Remote relationship with off-camera flash. You can still find Master settings on many current Speedlights, but because the terms Master and Commander are interchangeable, I will use Commander unless specifically referring to a setting marked as Master.

## Remote Mode

To use a Speedlight as a remote flash, the first thing you need to do is set the flash to Remote mode. You can use all the Speedlights as remote flashes except for the SB-300 and SB-400. To set a Speedlight to Remote mode, just do the following:

- **SB-500** : Turn the On/Off/LED/Remote switch to either Remote A or Remote B. You cannot use the SB-500 as a group C flash, and you can use only channel 3 to control the SB-500 in Remote mode ( [Figure 10.2](#) ).



**Figure 10.2** This SB-500 is in Remote mode and set to group A and channel 3.

- **SB-600** : Turn on the flash and then hold down the zoom and – buttons at the same time until you see the AWL icon.



Then press the Mode button until you see the word *ON* above the icon. Finally, press the On/Off button to put the flash in Remote mode ( [Figure 10.3](#) ).



**Figure 10.3** While in Remote mode, this SB-600 is set to group A and channel 1.

- **SB-700** : Press down the button in the middle of the On/Off/Remote/Master switch and rotate the switch to Remote ( [Figure 10.4](#) ). (Nikon made it easy set the modes on the SB-700.)





**Figure 10.4** This SB-700 is in Remote mode and set to group A and channel 1.

- **SB-800** : Turn on the flash and then press and hold the SEL button until the menu opens. Use the rocker switch to select the AWL menu and press the SEL button. Use the rocker switch to navigate up and down until the word *Remote* is highlighted, press SEL, and then tap the On/Off button. You know the SB-800 is in Remote mode when the word *REMOTE* is in the middle of the LCD ( [Figure 10.5](#) ).



**Figure 10.5** This SB-800 is set to channel 1 and group A in Remote mode.

- **SB-910 and SB-900** : Press down the button in the middle of the On/Off/Remote/Master switch and rotate the switch to Remote ( [Figure 10.6](#) ).



**Figure 10.6** While in Remote mode, this SB-910 is set to group A and channel 1.

To ensure your off-camera flashes can communicate with their Commander, all the remote units as well as the Commander need to be set to the same channel. If you are using the SB-500 as a remote flash, then you have to use channel 3. In all other instances, however, you can use any of the four channels you want. I usually use channel 1 for everything unless I am working in close proximity to another photographer also using Nikon Speedlights with AWL, and then we just make sure that we are not on the same channel. At times I want to set up two completely different lighting setups using the same location. By setting each of the setups to different channels, I can then switch between the two when making the photographs.

#### Note

The Speedlights in Remote mode and the Commander all need to be set to the same channel for the system to work.

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Next, you need to assign your Speedlights to a group. As mentioned earlier, you have a choice of three groups, designated A, B, and C. Each group can contain an unlimited number of flashes, but not all the Commander units can trigger all three groups. Before you choose a group for your remotes, make sure it's one that your Commander can trigger. The SU-800, SB-800, SB-900, and SB-910 can trigger all three groups, but the SB-700 and built-in flashes can fire only two. When you use the SB-500 on newer DSLR cameras (currently only the D750 and D810), it can fire groups A and B.

Finally, you need to adjust the zoom position of the flash head and illumination pattern of the remotes. Although the Commander can control the flash mode and power of the remote flashes, it cannot change the zoom or the illumination pattern remotely.

The remote flashes are now ready for you to place where you want them; simply make sure that the sensor on the side of each Speedlight is facing the Commander unit. The system uses line-of-site triggering, so if the remote unit cannot “see” the Commander unit, it will not fire. The sensor is located on the same side of the Speedlight as the battery compartment and just looks like a small dark circle.

The SB-R200 Remote Speedlight can be used as a Remote only, so it does not need to be set into any special mode; all you do is set the group and channel on the top of the small light ( [Figure 10.7](#) ). On the SB-R200 units, the remote triggering sensor is on the bottom of the unit where it would be in the best position to be seen by the Commander when mounted on the front of a lens using the close-up kit ( [Figure 10.8](#) ). Many times I use the small SB-R200 unit as a remote in locations where a full-sized Speedlight won't fit.



**Figure 10.7** For the SB-R200 Speedlight, you set the group and channel using its top controls.



**Figure 10.8** The bottom of the SB-R200 Speedlight contains the remote triggering sensor.

For [Figure 10.9](#) I used three remote flashes to create the lighting, including a single SB-R200 placed behind the book to simulate the light from the flashlight that the subject was holding. The small SB-R200 was set to group A, which was the main light on the subject. I set a second Speedlight, an SB-800 equipped with a Rogue Grid, below the camera to illuminate the book cover, and

set it to group B. I positioned a third Speedlight, an SB-910 set to group C, off to the left side of the camera. The group C light was gelled blue and aimed at the ceiling to add a color wash to the scene to help set the mood. The difficult part of this setup was getting the small SB-R200 to see the Commander, which was an SU-800. I used a TTL cord so that I could position the SU-800 high above the camera and angled slightly down so it could trigger all the remotes. The final piece of the puzzle was to make sure the SB-R200 was turned upside down with the remote sensor facing up and the flash angled so the light would bounce off the pages of the book and illuminate the subject.



NIKON D750 ISO 400 1/250 SEC. F/5.6

**Figure 10.9** Who doesn't like to read Photoshop books late at night in bed? For this image, I set up three off-camera flashes to control the different areas of light. One flash illuminated the child, the second added some light to the book cover, and the third acted as the ambient light in the room and added the blue tone.

## Commander Mode

Once you set up your remote Speedlights, you now need a way to trigger these off-camera flashes. To do so, you can use an SU-800 Commander or set up an SB-700, SB-800, SB-900, or SB-910 as a Commander. You can also use the SB-500 as a Commander if you mount it on a D750, D810, or D5500. On many Nikon cameras, another alternative is to use the built-in flash as a Commander. You cannot, however, use the SB-600 as a Commander.



When a Speedlight or built-in flash is in Commander mode, you can specify how much, if any, light is produced from the Commander to illuminate the scene. The Commander flash is designated by the letter *M* on the Speedlight's LCD and acts just like one of the three groups. The *M* actually stands for the Master Flash or Commander.

### Note

The following cameras cannot use the built-in flash to trigger off-camera flashes: D5500, D5300, D5200, D5100, D5000, D3300, D3200, D3100, D3000, D60, D50, D40, and D40X.

Setting the Speedlight to Commander mode is a little different on every Speedlight. Here are the basics:

- **SB-500** : The SB-500 cannot be used as a Commander unless it is mounted on Nikon's D750, D810, D7200, or D5500 DSLRs. As of this writing, these are the four newest cameras, and the SB-500 is the newest Speedlight, so it stands to reason that the ability to use the SB-500 as a Commander will be part of the CLS in future cameras as well. To use the SB-500 as a Commander, you need to mount it on the camera's hot shoe, turn it on, and then use the camera's menu system to open the Optional Flash menu. This menu enables you to use the SB-500 flash in TTL mode, in Manual mode, or in Commander mode ( [Figure 10.10](#) ). If the SB-500 is not mounted on the camera, this menu controls the built-in flash instead. After you choose Commander mode, you will be able to set the flash mode and power for the SB-500, as well as the flash modes and power for groups A and B. You will also be able to set the channel (1 to 4) to match the remote units' channel. Navigating the menu is easy using the multifunction switch on the back of the camera.





**Figure 10.10** The menu on the D750 shows the SB-500 being set as a Commander. On the flash the light under the CMD is on, letting you know that the SB-500 is now in Commander mode.

- **SB-700** : The SB-700 can be used as a Commander unit, but it has limited functionality. The SB-700 can control only two off-camera groups, and the flash mode of both groups has to be the same, either TTL or Manual. There is also a

mode available only on the SB-700 and the SU-800 in which you can set the power of the A and B groups as a ratio ( [Figure 10.11](#) ). To set the SB-700 as a Commander, just turn the On/Off/Remote/Master switch to Master. You have to press the button in the middle of the switch to allow it to turn.



**Figure 10.11** This SB-700 is in Commander mode. You can see that the Master flash is turned off and group A is set to +1 while group B is set to 0. The flash mode is set for all the groups over on the left side and is currently set to TTL. There is

no group C when using the SB-700 as a Commander.

- **SB-800** : To set the SB-800 into the Commander mode, you need to turn on the flash and then press and hold the SEL button until the flash menu opens. Use the rocker switch to select the AWL menu and press the SEL button. Use the rocker switch to navigate up and down until the word *Master* is highlighted; then press SEL and tap the On/Off button. When the SB-800 is in Commander mode, you see the screen divided into two halves. The left is for the groups (M, A, B, and C), and the right is for the channel, AWL icon, f/stop, and zoom ( [Figure 10.12](#) ).



**Figure 10.12** This SB-800 is set as a Commander with the Master Flash turned off, group A set to TTL with +1, group B set to Manual with a 1/8 power, and group C set to Aperture Auto with a -1 power adjustment.

- **SB-910 and SB-900** : To set the SB-900 or SB-910 as a Commander, just press the button in the middle of the On/Off/Remote/Master switch and turn it to Master. The SB-900 and SB-910 can control up to three groups using any of the four channels ( [Figure 10.13](#) ).



**Figure 10.13** This SB-910 is set to Commander mode with the Master flash set at TTL, group A set to Manual with 1/8 power, group B set to Aperture Auto with +0.7 power adjustment, and group C turned off.

- **Built-in Flash** : If your camera allows you to use the built-in flash as a Commander, you need to select this mode in the camera's menu system. For example, on the D750, the e3 menu is called Flash Cntrl for Built-in Flash, and this is where you can set the built-in flash to Commander mode ( [Figure 10.14](#) ). Check the manual for your camera.



**Figure 10.14** To set the D750's built-in flash to trigger the remote flashes, you use the e3 menu. Here the Master flash is turned off, while group A and group B are both set to TTL with +1 in group A and -1 in group B.

- **SU-800** : The SU-800 is a Commander and does not need to be set as one ( [Figure 10.15](#) ).





**Figure 10.15** This SU-800 has group A set to TTL with  $-0.3$ , group B is Aperture Auto with  $+0.7$ , and group C is Manual with  $1/4$  power. There is no setting for the Master flash because the SU-800 does not produce any illumination light.

Once you set up the Commander, you need to set the channel to match that of the remotes; then you specify the flash mode and power setting to use for each of the groups.

## Flash Modes

The Commander unit allows you to control the flash mode of the Commander flash and the remote flashes by group. Simply set the flash mode once for the group, and all the flashes assigned to that group will be triggered that way. If you are using a Speedlight or your camera's built-in flash, you can also control the flash mode of the Commander unit. The four flash mode choices are as follows:

- **TTL (Through the Lens)** : In this mode, the flash fires a pre-flash and measures the light reflected off the subject through the lens of the camera. The power of the flash is



then adjusted to create the best exposure according to the camera. You can adjust the power for the group from  $-3$  to  $+3$ , but remember that the adjustment affects *all* the flashes in that group. Using TTL can give you great results and can also drive you crazy. Because the camera is reading the light coming in through the lens right before the actual photo is taken, a small change from one group of lights can have a large effect on the other groups. You need to think of all the flashes as a whole because the amount of light produced by one group can affect the other groups. This mode is supported by the SB-700, SB-800, SB-900, and SB-910, as well as the built-in flashes and the SU-800 unit.

- **M (Manual)** : In this mode, you set the power of the flash and it doesn't change. The power is set as a fraction from  $1/1$  all the way to  $1/128$ . It makes no difference what the other groups do or don't do; when you have the flash mode set to Manual, the flashes fire at that power. However, be warned: If the remote flashes are of different types, the amount of light they produce at the same setting can be different. For example, an SB-900 and an SB-800 set to Manual flash mode at  $1/4$  power will produce different amounts of illumination—and that doesn't even take into account the effect of their battery freshness on the amount of light produced.
- **AA (Aperture–Auto)** : In this mode, the flash reads the light bounced back from the pre-flashes and sets the flash output. It can be adjusted from  $-3$  to  $+3$ . This mode is not available when you use the SB-700 as a Commander, nor can you set the SB-500 to AA mode when using it as a Commander on the D750, D810, or D5500.
- **--- (Off)** : In this mode, the selected group does not fire at all. It is useful for creating different lighting effects without having to go and adjust the lights. For example, you can turn the on-camera flash off so that it doesn't add anything to the illumination of the scene, so all the light is then coming from the remote units. You will still see the Commander flash output a burst of light, but this is the pre-flash that talks to the remotes, not an actual flash that illuminates the scene.

After you set the flash mode in the Commander unit, it will trigger the remote units when you press the shutter release button all the way down ( [Figure 10.16](#) ).



**Figure 10.16** As you can see, when the SB-910 is in Commander mode, you can have different flash modes for each group and the Commander itself. Here the Commander flash (M) is turned off and group A is set to Manual, group B to Aperture–Auto, and group C to TTL.

How you set the flash mode on the Commander depends on the unit you're using:

- **SB-700** : On the SB-700, you set the mode for all the groups with the slide switch on the back left of the Speedlight. The SB-700 does not allow you to set different groups to different modes.
- **SB-800** : With the SB-800 turned on and in Commander

mode, press the SEL button to cycle through the groups and channel. When the group you want to edit is highlighted, press the Mode button until the mode you want is showing.

- **SB-900 and SB-910** : When the Speedlight is in Commander mode, press the SEL button to cycle through the groups. When the one you want to edit is highlighted, press the Mode button to change the mode of the selected group.
- **SU-800** : When the SU-800 is turned on, press the SEL button to cycle through groups A, B, and C and the channel. When the selected group is flashing, press the Mode button to change the mode.
- **Built-in flash** : The exact sequence of actions depends on the camera model, but usually you use the Custom Setting menu to set the Flash Control options for the built-in flash.

## Flash Power Setting

Not only does the Commander unit allow you to set the flash mode for the remote groups, it also enables you to adjust the power for each group independently of any other group. With this flexibility you can create some complex lighting setups.

To set the power for each group, just follow the appropriate steps for the unit you are using as the Commander:

- **SB-700** : With the SB-700 turned on and in Commander mode, press the SEL button to cycle through the groups and channel. When the group you want to adjust is highlighted, use the dial to adjust the power by rotating it to the right for more power or to the left for less power. Rotate it all the way to the left past the lowest power setting to turn off the group.
- **SB-800** : With the SB-800 turned on and in Commander mode, press the SEL button to select the group you want to adjust. When the group is highlighted, press the + and – buttons to adjust the power.
- **SB-900 and SB-910** : With the Speedlight is in Commander mode, press the SEL button to cycle through the different groups. When the group you want is highlighted, press the Flash Compensation button to adjust the power of the selected group. You can also use the scroll wheel to adjust the power after pressing the Flash Compensation button.

- **SU-800** : When the SU-800 is turned on, just press the SEL button to cycle through groups A, B, and C and the channel. When the selected group is flashing, press the left and right buttons to change its power.
- **Built-in flash** : The exact sequence of actions depends on the camera model, but usually you use the Custom Setting menu to set the Flash Control options for the built-in flash.

Each of the flash modes has a different method for adjusting the power, but the basics are the same. You can either increase the power or decrease the power within a certain range.

## TTL Mode

In TTL mode, you adjust the power by group from  $-3$  to  $+3$  in  $.3$  increments. That means you can dial down the power in one group to be three stops under what the camera believes the light should be, while you dial up the power in another group to three stops over what the camera believes the light should be. This gives you quite a bit of control but can be frustrating when you're working with multiple light groups. Remember, the light produced from one group can influence the light produced by another. Keep in mind that in TTL mode the camera is looking at the exposure right before the image is taken, meaning that the adjustment of one group to produce less power might make the other group automatically produce more to get the whole exposure back to where the camera believes it needs to be.

For [Figure 10.17](#), I used a single SB-910 off-camera in a softbox set to group A in TTL mode. The camera adjusts the output of the remote flash, and all I had to do was adjust the power of the group down  $-1.7$  to get the photo I wanted. Because the camera wants to make everything a middle gray, shooting the scene at straight TTL without adjustments would have created an overexposed image where the large areas of black would have been more gray and the light areas would have been overexposed



NIKON D750 ISO 100 1/250 SEC. F/6.3

**Figure 10.17** For this image, I shot an off-camera SB-910 through a softbox to the camera's left, controlling it by an SU-800 on camera. I dialed down the SB-910's power (group A) to  $-1.7$  to keep the black background dark.

For [Figure 10.18](#), I put three SB-800s together on a McNally Lastolite TriFlash holder and set all three to group A. I then raised the umbrella up high and off to the camera's right and used it as a fill light while taking photos outside. I set the flash mode for the group to TTL and adjusted the power until I had the light I wanted, in this case just a small  $-0.3$  adjustment.



NIKON D750 ISO 200 1/60 SEC. F/5.6

**Figure 10.18** Three SB-800 Speedlights fired through a large umbrella raised over my head and off to camera's right created the fill light for this shot. I dialed the lights down a little by setting the flash mode to TTL and  $-0.3$ .

## Manual Mode

With the flash mode set to Manual mode, you can adjust the power from 1/1 (full power) all the way to 1/128 power in 1/3 steps. The real advantage to using Manual mode is that the output doesn't change; it is set by the Commander and stays the same. For the portrait of musician Cody Lovaas in [Figure 10.19](#), I used a single SB-910 in a Rapid Box Octa on the camera's right and had an assistant hold a silver reflector on the left to add some fill light. I chose Manual mode because I need the exposure to stay exactly the same as Cody posed and the assistant moved the reflector.



NIKON D4 ISO 200 1/160 SEC. F/4

**Figure 10.19** I photographed Cody Lovaas in his house using a single SB-910 off to the camera's right in a Westcott Rapid Box and a reflector adding some fill over on the left. I controlled the power using a second SB-910 as a Commander. The remote flash was set to group A and used the Manual mode with the power set at 1/8.

### **Auto-Aperture Mode**

Aperture–Auto mode works a lot like TTL mode, but instead of the camera reading the amount of light needed and controlling the power of the flash, the flash reads the lights and controls the output. You can adjust this mode in the same way as TTL mode, from –3 to +3. Keep in mind that when using this mode, adjusting the power of one group can affect the amount of light produced by another group because the flash is looking at all the light in the scene when calculating the flash power.



## Repeating Flash Commander Mode

Available only when you use the SB-800, SB-900, or SB-910 as the Commander, Repeating Flash Commander mode enables you to create a stroboscopic effect by firing off-camera flashes repeatedly. To use this mode, you need to turn it on in a special menu setting. To do so, use the following steps:

- **SB-800** : Turn on the flash and then press and hold the SEL button until the menu opens. Use the rocker switch to select the AWL menu and press the SEL button. Use the rocker switch to navigate up and down until Master (RPT) is highlighted and then press SEL and tap the On/Off button ( [Figure 10.20](#) ).



**Figure 10.20** On the SB-800, highlight Master (RPT) in the menu to turn on Repeating Flash Commander mode.

- **SB-900 and SB-910** : Turn on the flash by rotating the On/Off/Remote/Master switch to Master. Press the menu button and use the dial to navigate to the AWL RPT menu choice ([Figure 10.21](#) ). Press OK, use the dial to select ON, and press OK again. Finally, press the Menu button to close the menu.



**Figure 10.21** This SB-910's menu shows the AWL Repeating Flash Commander mode highlighted and turned on.

With the Speedlight in in the Repeating Flash Commander mode, you can now set the flash power, the number of times the flash will fire, and the frequency. Simply follow the same steps for setting it for a single, on-camera flash, which were discussed in [Chapter 9](#) . The big difference here is that you can now specify which groups will fire when you make the photograph ( [Figure 10.22](#) ). You cannot adjust the output, number of flashes, or frequency for the individual groups; they are either on or off. You can also turn the Commander on or off depending whether you want it to add any light to the scene ( [Figure 10.23](#) ).



**Figure 10.22** This SB-800 has group A turned on while the rest are turned off. The power is set to 1/8 with four flashes firing at 4 Hz.

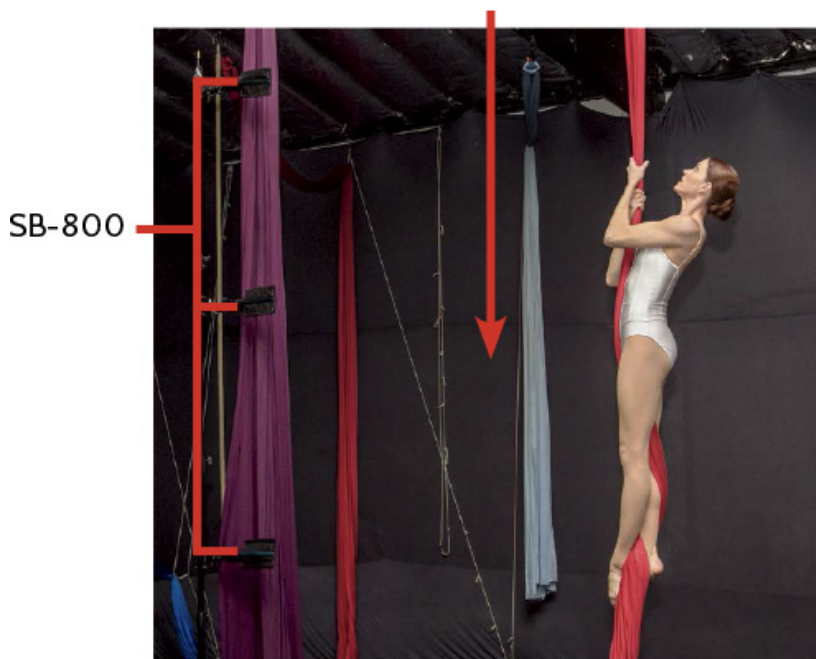


**Figure 10.23** This SB-910 is in RPT mode with 1/8 –0.3 power. The Master flash and groups A and B are turned on.

Because you can't adjust the different groups to individual power settings, you might wonder why you should use multiple groups at all. The best reason is to be able to add or subtract the number of lights that are firing without having to manually turn them off or on. For example, in [Figure 10.24](#) I attached three SB-800 Speedlights to lightstand about 4 feet apart using Justin clamps with each set as a different group so I could experiment with different looks without having to lower the light stand each time to turn on the lights on or off. The flashes were set so that Jennifer could travel down the silks that were attached to the ceiling while

the flashes fired. On each of the flashes I used a FlashBender flag to stop the light from spilling out toward the camera. Then Jennifer climbed to the top of the silk, and with the lights turned off, she did a Double Star drop while the Speedlights fired. With a few tweaks to the timing all set from the controller, an SB-910 mounted on a Nikon D4, we ended up with [Figure 10.25](#) .

#### DIRECTION OF THE MOVEMENT



**Figure 10.24** You can see the three SB-800 Speedlights clamped to a tall light stand and flagged with Rogue FlashBender flags. These three Speedlights were controlled by the SB-910 mounted on the camera in the Repeating Flash Commander mode.





NIKON D4 ISO 100 2.5 SEC. F/5.6

**Figure 10.25** The stroboscopic effect of the SB-800s firing as Jennifer performed the Double Star drop in the dark shows the motion and beauty in her movements.

### **Quick Wireless Control Mode (A:B)**

Available on the SB-700 and SU-800, Quick Wireless Control mode enables you to adjust the flash output levels of group A and B as a



ratio of one to the other. When used as the Commander, the SB-700 does not fire in this mode. Setting this mode is straightforward on both Commander units:

- **SB-700** : Turn the On/Off/Remote/Master switch to Master. Then slide the flash mode switch on the back-left side of the Speedlight to GN A:B.
- **SU-800** : Open the battery cover on the front the unit and slide the switch to Macro, which is designated by the flower icon.

When in this mode, you adjust both the A and B groups together. If you add power to the A group, you reduce power to the B group, and vice versa.

On the SB-700, follow these steps to adjust the power:

1. With the SB-700 in Commander mode and set to GN A:B, press the SEL button to highlight the AB group.
2. Rotate the dial to the left to increase power to the A group and to the left to increase power to the B group.
3. Press the SEL button to highlight Flash Compensation.
4. Rotate the dial to the left to decrease the power and to the right to increase the power. This adjustment is made to all the flashes in both the A and B group.

You can adjust the power from all A and no B to all B and no A.

**Table 10.1** lists all the available power ratios.

A	1	8	6	4	3	2	1.5	
B	---	1	1	1	1	1	1	
A	1	1	1	1	1	1	1	---
B	1	1.5	2	3	4	6	8	1

**Table 10.1 A:B Power Ratios on the SB-700**

On the SU-800 you can adjust the A and B group independently or as a ratio to each other. To adjust them as a ratio, just follow these directions:

1. With the SU-800 in Macro mode, press the A-B button until both the A and B groups are shown on the screen.
2. Press the SEL button until the ratio under the A-B is flashing.

3. Use the left and right arrow keys to adjust the power.
4. Press the SEL button again to highlight the EV setting; then adjust by using the left and right buttons.

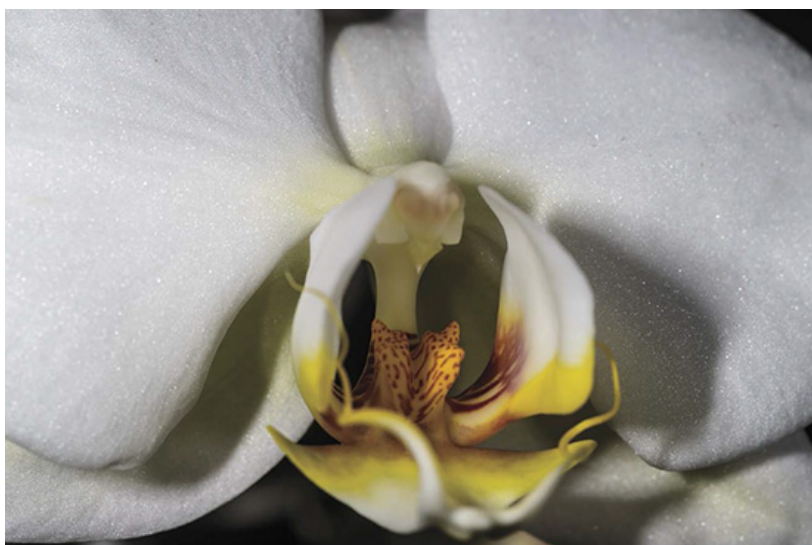
You can adjust the power from 1:8 to 8:1, as you can see in [Table 10.2](#).

A	8	6	4	3	2	1.5	1.5
B	1	1	1	1	1	1	1
A	1	1	1	1	1	1	1
B	1	1.5	2	3	4	6	8

**Table 10.2 A:B Power Ratios on the SU-800**

The SU-800 also allows you to adjust the A and B groups independently. You can access the separate groups by pressing the A-B button on the back of the SU-800.

For the photos in [Figures 10.26](#) and [10.27](#), I set up two of the SB-R200 flashes on the lens and used the SB-700 in the Quick Wireless Control mode to adjust the power of each flash. For [Figure 10.27](#), I used a 8:1 ratio for A:B and then used a 1:8 ration for Figure 10.28. Done right on the flash, making the change was as easy as a press of the button and a quick rotation of the dial.



NIKON D4 ISO 100 1/250 SEC. F/16

**Figure 10.26** To photograph the orchid, I used the D4, a 105mm macro lens, and two SB-R200 Speedlights with a ratio

of 8:1. As you can see, the A group, which was on the camera's left, created the shadows seen over on the right side of the flower.



NIKON D4 ISO 100 1/250 SEC. F/16

**Figure 10.27** For this shot, I changed the ratio to 1:8. Now the majority of the power comes from the right side of the frame, while the A group adds a little bit of fill.

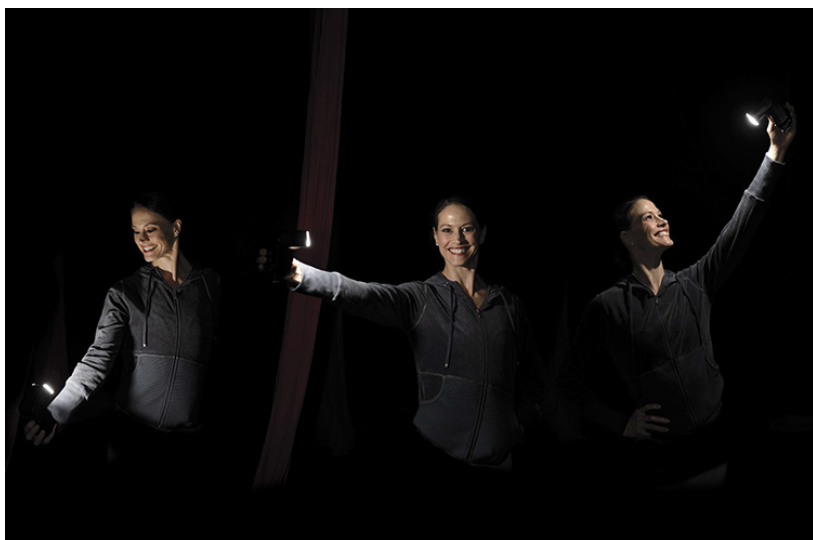
## Final Thoughts

The Advanced Wireless Lighting functions built into the Creative Lighting System are powerful. With them, you can trigger off-camera lighting with ease, as well as create and control multiple lighting groups. All this flexibility allows you to set up some really complex lighting simply.

I recommend you start with one off-camera flash and work up to multiple Speedlights. There are a few things that can and will make a difference when setting up off camera flashes. The first is to use fresh batteries in all the flashes so that they are fully powered. Second, always fire a test photo to make sure that the remote flashes are all awake. You can easily test to see whether all the flashes are firing correctly by pressing the Test Fire button on the Commander unit. This will fire the remote groups in order, first group A, then B, and finally C. This not only lets you know that the Commander and the remotes are seeing each other but also visually lets you know which groups are which. In the next chapter, we will take the off-camera flash a little further by adding

radio triggers and mixing the line-of-sight triggering and radio triggers together.

## 11. Off-Camera Flash Triggers



NIKON D4 ISO 100 1/250 SEC. F/11

Using multiple off-camera flashes allows for some really creative lighting scenarios. The ability to trigger an unlimited number of Speedlights in up to three groups using the Advanced Wireless Lighting (AWL) functions of the Creative Lighting System (CLS) enables you to build up complex lighting scenarios. This chapter not only covers the possibilities when using AWL's A, B, and C groups but also shows you alternative ways to trigger off-camera lights, including radio triggers and SU-4 mode on the Nikon Speedlights.

### Working with Groups

The ability to control and adjust three groups, each with an unlimited number of flashes and each with its own flash mode and power setting, makes the AWL capability of the CLS incredibly powerful.

When you set up a Speedlight as a remote, you need to set the channel and the group. All the flashes and the Commander need to be on the same channel to work, but the remotes can use the A, B, or C group. For all the examples in this chapter, I used a Commander that supports all three groups and allows for different flash modes to be set separately for each group. The SB-800, SB-900, and SB-910 (shown in [Figure 11.1](#)) all can handle this

configuration.



**Figure 11.1** The SB-910 in this lineup is set as the Commander with the SB-800 as group A, the SB-700 as group B, and the SB-600 as group C. All the Speedlights are set to channel 1. As you can see, the layout showing the group and channel is different on each Speedlight.

When working with multiple groups, you need to plan the shoot beforehand so that you can sort and set the Speedlights into the proper groups. Here are some tips for keeping your Speedlights organized when using them in multiple groups:

- **Sort by lighting area** : Instead of thinking about the Speedlights as individual lights, it helps to think in terms of the *zones* that you want to illuminate. When I am setting up a shoot, I usually think in terms of a main light, fill light, and background light. I assign group A to be the main light source, group B to be the fill light, and group C to be the background light.
- **Build the scene group by group** : One advantage to using multiple groups is the ability to build up the light in the scene by turning the groups on one at a time. This is especially useful when using the flashes in TTL mode because the light from one group can affect the power of another group. Being able to turn a group on or off from the camera position allows for quick adjustments.
- **Label your lights** : Setting up a lot of lights can create some issues when it comes to remembering which lights are in which groups. I have used two different methods to keep track of which Speedlights are in which groups. The first was color-coding; I used red tape to designate the main light (group A), yellow tape for the fill light (group B), and

white for the background (group C). Illustrated in [Figure 11.2](#), this method worked great if I was working alone because only I needed to know what the colors meant. My second method is to use a piece of white gaffer tape and just write A, B, or C on it as I set up the lights. This method works great when you are working with an assistant who also needs to know which lights are in which group at a glance.



**Figure 11.2** Some colored electrical tape makes it easy to see which Speedlights are in which groups.

- **Test the groups :** You can use the Test Fire button on the Commander flash or SU-800 to trigger the remote flashes. When the remotes fire, they do so in sequence; first the Commander unit fires (if it is a Speedlight), then group A, followed by group B, and finally group C. A test fire allows you to do two things: It shows you visually which lights are in which group, and it makes sure that the Speedlights are awake and ready to fire.

Using groups allowed me to build up the lighting for this photograph of Tim performing a snap kick. Using three groups enabled me to control the three different lighting zones. The background (group C) was a Speedlight with a grid and red gel creating the red area behind Tim. [Figure 11.3](#) shows the scene with just group C turned on. Group C was set to Manual flash mode with the power at 1/16 to create a deep red. If this group had been set to TTL, it would have tried to put out as much light as possible to make the whole scene a middle gray. I wanted to make sure the



red light on the background remained constant no matter what the other flashes did.



NIKON D750 ISO 200 1/320 SEC. F/5

**Figure 11.3** The group C Speedlight had a Rogue Grid (Expo Imaging) with a red gel and was placed behind Tim, facing the black paper background.

The next step in building the light was to add the two sidelights that would help to define the outline of the subject. I set the two SB-800 Speedlights, one on either side of Tim, to group B and outfitted them with flags to keep the light from spilling onto the background or foreground. Group B was set to TTL with -1 Flash Compensation. As you can see in [Figure 11.4](#), adding the sidelights didn't diminish the red background, but now Tim is outlined with the hard, white light.



NIKON D750 ISO 200 1/320 SEC. F/5

**Figure 11.4** The two SB-800s are set to group B and add the sidelight to the image. Because group C is set to Manual, the addition of the sidelights doesn't change the amount of red in the background.

The final light is an SB-910 with a Wescott Rapid Box 26" Octa on a boom placed off to the camera's left and angled both to light up the foot that is kicking and to add some fill light to Tim's face ( [Figure 11.5](#) ).



NIKON D750 ISO 200 1/320 SEC. F/5

**Figure 11.5** With all three groups set up, it was just a matter of timing to catch the kick at the highest point.

## Radio Triggers

The CLS uses line-of-sight triggering for remote flashes, but what do you do when that line is blocked? Rather than compromise your lighting or set design, you could use a wireless radio trigger, such as those made by PocketWizard ([www.pocketwizard.com](http://www.pocketwizard.com)) and RadioPopper ([www.radiopopper.com](http://www.radiopopper.com)), to fire your off-camera flashes. You simply attach a transmitter unit to the camera and receiver units to each of the remote flashes. When you press the shutter release button on the camera, the transmitter sends a signal to the receiver units, and the flashes fire.

The debate of which is better, radio triggers or CLS, seems to strike a nerve with many people. For me, it depends on what the subject is and, much more importantly, where the remote flashes need to

be placed. There are some real advantages and disadvantages to wireless radio triggers.

## Advantages to Using Radio Triggers

The biggest advantage to using radio triggers is that they use a wireless radio signal instead of a line-of-sight trigger, which means they can trigger remote flashes that are hidden from the camera. In addition, radio triggers can have a much longer range than the built-in, CLS line-of-sight triggers and can be more consistent. For example, PocketWizard triggers have a range of up to 1,600 feet (and that's with the entry-level units), while the CLS system's range is a lot less, especially outdoors. The CLS is also dependent on the direction that the Commander unit faces and the ability for the remote to see the light the Commander produces. The flash in [Figure 11.6](#), for example, was placed outside and triggered using a set of PocketWizard triggers. You can see the resulting image in [Figure 11.7](#). The same thing might have been possible using AWL, but it would have involved using multiple TTL cables and getting the Commander flash positioned in such a way that the remote could see it. Using the set of PocketWizard triggers was just easier.



NIKON D750 ISO 400 1/250 SEC. F/5.6

**Figure 11.6** Placing the Speedlight outside the window created a light that looked like natural sunlight. Triggering the Speedlight with a PocketWizard system allowed me to move around and not worry about maintaining a line of sight between a Commander and remote.



NIKON D750 ISO 400 1/250 SEC. F/5.6

**Figure 11.7** Using the light coming in from outside through the window created a soft light on Nicole, and I could move around freely without worrying about losing the line of sight between the Commander and the remote.

## Disadvantages to Using Radio Triggers

Radio triggering systems do have a few disadvantages. Most obviously, you need to buy a transmitter and at least one receiver (you need a separate receiver for each remote flash), so the cost of using radio triggers can climb quickly. For example, if you go with the lowest-priced PocketWizard system, the PlusX, you will have to pay \$200 for the two units to get started and then another \$100 per unit as you add more remote flashes. This can add up fast.

Another disadvantage to using a radio trigger is that many of the systems do not allow you to control the power of the remote flash from the camera; every power adjustment needs to happen on the

actual flash, or you need to adjust the settings on the camera to get the exposure you want based on the flash's power. Having to adjust each flash can take a lot of time and disrupt the entire photo shoot. Imagine if you had a Speedlight mounted on the top of a tall light stand and each time you wanted to make a small adjustment to the power you needed to either lower the light or climb a ladder. That could disrupt the entire flow of the shoot, and you might not end up looking very professional.

There is also the issue that not all the Speedlights are compatible with the PocketWizard sync cord. For example, the SB-500, SB-600, and SB-700 have no way to attach a sync cord, so you need a special cord for each flash (the HSFM3) to use them with the PocketWizard system. The PocketWizard MiniTT1 and FlexTT5 combination is meant to work with the Nikon CLS, but you still need to purchase a receiver for each flash and transmitter for the camera.

## Using Radio Triggers

To use radio triggers, you need to put the transmitter on the camera using the camera's hot shoe ( [Figure 11.8](#) ) and then attach the receiver to the Speedlight using a PC sync cable for the Speedlights that have a PC port ( [Figure 11.9](#) ). Only three Speedlights have PC ports: the SB-800, the SB-900, and the SB-910. If you want to use a PocketWizard trigger with a Speedlight that doesn't have a PC port, you can use the HSFM3 trigger cable. This 3-foot cord has a hot shoe on one end and a mono miniphone connector on the other. This allows you to put any flash into the hot shoe and plug the miniphone connector into the PocketWizard receiver.



**Figure 11.8** When you press the shutter release button, the



PocketWizard transmitter in the camera's hot shoe sends a signal to the receiver and triggers the flash.



**Figure 11.9** The PocketWizard receiver unit attaches to the flash using a PC sync cord, allowing the flash to fire when it receives a signal from the transmitter.

The transmitter and the receiver both need to be set to the same channel. When you press the shutter release button, the transmitter sends a signal to the receiver firing the flash. When you use a radio trigger to fire the remote flashes, you no longer have the ability to use the High-Speed Sync and the shutter speed needs to be 1/250 or slower.

For this type of off-camera flash, you need to set the flash mode on the Speedlight to Manual and set the power to the desired output level. This type of triggering does not have any way to adjust the output of the remote flashes, and because the transmitter is mounted in the camera's hot shoe, you can't mount a flash on the camera to add any illumination to the scene. If you want to adjust the output of any of the remotes, you have to physically adjust the power on the individual flashes.

## Radio TTL

Some radio triggers work using TTL so that the output of the flash is controlled by the radio transmitter on the camera. For example, PocketWizard's Flex TT5 and Mini TT1 system leverages the Nikon

CLS idea but uses radio signals instead of line-of-sight triggering. This system allows for TTL metering and flash output control but over a greater range and without the line-of-sight limitations. For the system to work, you need a Flex TT5 for each of the Speedlights you want to control and either a Flex TT5 or the dedicated Mini TT1 as a transmitter. The downside to this system is the price: The Mini TT1 transmitter retails for approximately \$200, and the Flex TT5 retails for \$220. That means you need to spend at least \$440, plus \$220 per additional off-camera flash.

## **SU-4 Mode**

A third remote triggering alternative is using SU-4 mode, which is built into some Speedlights and turns them into optical remotes that are triggered by any flash. When you use SU-4 mode, the flash fires when it sees another flash fire. This is a basic optical slave mode and can be especially useful when combining line-of-sight triggering with radio triggers. SU-4 mode predates the Creative Lighting System, but it is still available in the SB-700, SB-800, SB-900, and SB-910.

## **Setting the SU-4 Mode**

The steps for setting your Speedlight to work in SU-4 mode depend on which model you are using.

### **The SB-700**

To set the SB-700 to SU-4 mode, do the following:

1. Turn on the flash.
2. Press the MENU button.
3. Use the Selector dial on the back of the flash to navigate to the REMOTE setting.
4. Press the OK button.
5. Use the Selector dial to highlight and select SU-4 ( **Figure 11.10** ).



**Figure 11.10** Use the SU-4 menu on the SB-700 to select that mode.

6. Press the OK button.
7. Press the MENU button to exit the menu system.
8. Press the button in the middle of the On/Off/Remote/Master switch and rotate the switch to Remote.

You will know that the flash is set the SU-4 mode because it will show SU-4 and REMOTE on the back of the flash ( [Figure 11.11](#) ).



**Figure 11.11** When set to SU-4 mode, the SB-700 LCD displays REMOTE SU-4.

## The SB-800

To set the SB-800 to SU-4 mode, follow these steps:

1. Turn on the flash.
2. Press and hold the SEL button for two seconds, and the menu system will open.
3. Press the Right arrow.
4. Press SEL button to select the mode menu.
5. Press the – button until SU-4 is highlighted.

6. Press the SEL button to select the mode ( [Figure 11.12](#) ).



**Figure 11.12** The SU-4 menu on the SB-800 lets you specify that mode.

7. Tap the power button to exit the menu.

The back of the flash will say REMOTE ( [Figure 11.13](#) ).



**Figure 11.13** When set to SU-4 mode, the SB-800 LCD displays REMOTE.

### The SB-900 and SB-910

To set the SB-900 or SB-910 to SU-4 mode, you need to do the following:

1. Turn on the flash.
2. Press the MENU button.
3. Use the Selector dial on the back of the flash to navigate to the WIRELESS setting.
4. Press the OK button.



5. Use the Selector dial to select SU-4 ( [Figure 11.14](#) ).



**Figure 11.14** This SB-910 is set to SU-4 mode, as you can tell from the SU-4 menu.

6. Press the OK button.
7. Press the MENU button to exit the menu system.
8. Press the button in the middle of the On/Off/Remote/Master switch and rotate the switch to Remote.

You will know that the flash is set the SU-4 mode because it will show SU-4 and REMOTE on the back of the flash ( [Figure 11.15](#) ).





**Figure 11.15** When set to the SU-4 mode, the SB-910 LCD shows SU-4 REMOTE across the back.

You can also set the SB-900 and SB-910 to act as a Commander in SU-4 mode if you want to trigger off-camera remotes that are set to SU-4 mode. To do this, just follow the previous directions, but instead of rotating the On/Off/Remote/Master switch to Remote, turn it all the way to Master. You will see that the LCD will show SU-4 mode and the mode the flash is set to; for instance, the SB-910 in [Figure 11.16](#) is set to Manual.



**Figure 11.16** When set to SU-4 Commander mode, the SB-910 LCD displays SU-4 and the mode across the top.

### Flash Modes Available in SU-4 Mode

When a Speedlight is in SU-4 mode and set as a remote, you can use your choice of three flash modes.

- **Auto** : In this mode, the Commander flash controls the flash output. The remote starts to fire when the Commander does and stops when the Commander does. This mode can give you inconsistent results, especially when working with different flashes. I prefer to work in Manual mode, which

gives much more control over the flash output.

- **Manual** : In this mode, you set the power of the flash, and as long as the flash has enough time to recycle, the output stays constant. The flash fires when it sees another flash fire.
- **Off** : This temporarily turns off the flash without having to power it all the way off. It's useful when setting up the shot so that you can see what effect the individual Speedlight is having on the overall lighting. (Off mode is not available on the SB-800.)

On the SB-700, you set the mode by sliding the Mode switch on the back-left side of the flash. The TTL setting puts the flash in Auto mode, the Manual setting puts the flash in Manual mode, and the GN setting turns the flash output off. [Figure 11.17](#) shows the back of the SB-700 and highlights the switch in relationship to the modes in relationship.



**Figure 11.17** When set to the SU-4 mode, the SB-700 shows the mode on the left side of its LCD.

On the SB-800, you just press the MODE button to change between Manual and Auto mode. You can tell which mode the SB-800 is in by the small A or M next to the Wireless icon on the LCD, as shown in [Figure 11.18](#) .



**Figure 11.18** When the SB-800 is set to SU-4 mode, its LCD displays SU-4 and a small *M* along with the output setting.

On the SB-900 and SB-910, you change the mode by pressing the MODE button, which cycles through the three choices. You can also change the zoom of the flash head and the light pattern on the flash. When the SB-900 and SB-910 are in SU-4 mode and set to Master, then you can use them to trigger off-camera flashes set to SU-4 mode. There are three modes the Speedlight can use as a Commander: Manual, Auto-Aperture, and GN.

### Using SU-4 Mode

When you use SU-4 mode to trigger remote flashes, you do not have control of the remotes from the Commander unit. If you want to change their flash mode or power settings, you need to

physically change them on the actual flash. You also need to make sure that none of the flashes fires a pre-flash because the pre-flash can trigger the remote flashes. This is extremely important and one of the main reasons for misfires when using SU-4 mode. The remote flash fires when it sees *any* flash of light; a pre-flash will set it off, and the flash will fire too early.

The easy fix for this is to make sure that the flash on the camera, the one that is triggering the SU-4 remote, is set to Manual mode, which does not fire any pre-flash at all. But the SU-4 remote doesn't have to be triggered from the flash on the camera; it can be triggered by any flash that it sees, so it is also extremely important that none of the other flashes that are in range of and can be seen by the sensor fires a pre-flash of any type.

A second issue can prevent the remote flash from firing, especially when using it outdoors in sunlight. When the sensor on the remote flash is in direct sun, it might not see the flash from the Commander unit. The fix for this is easy; you just need to make a sunshade for the sensor window so that the sensor on the side of the flash is no longer in direct sunlight. A small piece of gaffer tape works great, as you can see in [Figure 11.19](#) .



**Figure 11.19** A small piece of tape shades the sensor so you use the flash in SU-4 mode outdoors in bright light.

The actual setup of the flashes is the same as if you are using SU-4 mode or AWL. You need to make sure that the sensors on the remote flashes can see the Commander flash. For me, the real power of SU-4 mode is when you combine it with radio triggers.

## **Mixing Radio and Line of Sight**

SU-4 mode allows you to mix flashes fired by radio triggers with those triggered by line of sight. Not only does this allow you to trigger Speedlights at a much greater distance and out of sight of the camera, but it also allows you to mix studio strobes and Speedlights.

When mixing radio-triggered flashes and line-of-sight flashes, use a radio transmitter on the camera to trigger the main lights and ensure the SU-4 Speedlights can see those main flashes fire so they are triggered by their flash of light. For this to work, the flashes



need to be in SU-4 mode and the sensor on the side of the flash needs to face the light that is triggered by the radio trigger.

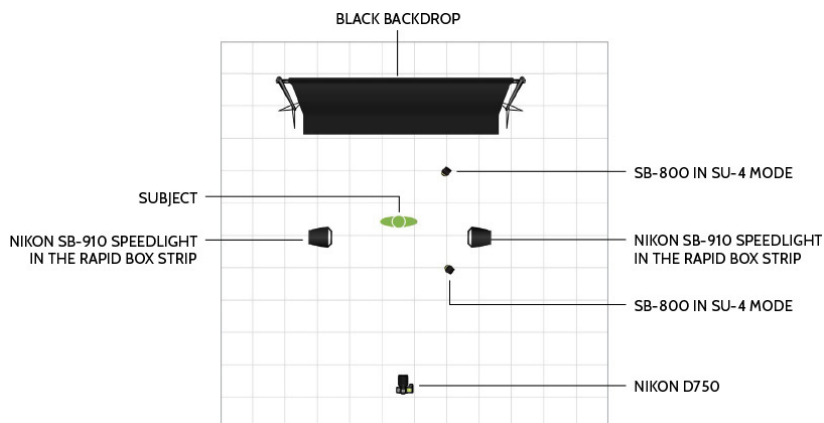
The easiest way to demonstrate how this all works together is to walk through an example using the PocketWizard system and some Speedlights set to SU-4 mode. Although I could just as easily have used studio strobes as the main lights, I set up two SB-910 Speedlights, each equipped with a PocketWizard PlusX receiver. A PocketWizard Plus Digital Transmitter on my Nikon D750 acts as the trigger, and all the PocketWizard units are set to channel 1 ( [Figure 11.20](#) ). Both the SB-910 Speedlights are mounted in the Westcott Rapid Box Strips, and because I am not using AWL line-of-sight triggering, I do not have to worry whether the sensors are facing the camera.



**Figure 11.20** The PocketWizard units are all set to channel 1 with the PlusX attached to the SB-910s and the Plus on the hot shoe of the camera. All the PocketWizard units must be set to the same channel for them to work, and because the Plus has only four channels, the choices are limited to those four when using this model.

Both the SB-910s are set to Manual flash mode with a 1/4 power setting and are set up to either side of the subject. These are the main lights that will illuminate the subject from either side.

There are going to be two SB-800s adding some hard light right on the feet from the front right and the rear right, and both are set in SU-4 mode so they will be triggered when the SB-910s fire. The SB-800s both have snoots on them to tightly control the spill of light, and both the SB-800s are set to Manual at 1/8 power. The lighting diagram for this is shown in [Figure 11.21](#) and the final images in [Figure 11.22](#) and [11.23](#) .



**Figure 11.21** This lighting diagram shows the placement of all lights in the scene.



NIKON D750 ISO 400 1/250 SEC. F/5.6

**Figure 11.22** The final shot was taken with a 300mm f/4 lens, which creates a tight crop. The low angle of the SB-800 Speedlights helps to create the great reflection off the floor and keep the focus right on the ballet slipper.



NIKON D750 ISO 400 1/250 SEC. F/5.6

**Figure 11.23** Keeping the same camera and flash settings, I had Jennifer sit, and I lowered the two strip lights on either side for this image. Notice that the focus and bright lights are still right on the ballet slipper.

By combining the radio triggers with the SU-4 line-of sight mode, I was able to use four Speedlights to create the necessary lighting without having to have a radio trigger for each flash. On the downside, I was limited to a maximum shutter speed of 1/250 second, which might have given me problems if I was shooting during the daylight hours as I needed to reduce the ambient light as much as possible.

## Final Thoughts

Off-camera Nikon Speedlights might not replace big studio strobes for every job, but they sure are versatile and at a much lower cost. You can trigger the Speedlights using wireless radio triggers, like you would studio strobes, or by turning on the optical slave SU-4 mode you can use the Speedlights along with the studio strobes. An often-overlooked function of the SB-700, SB-800, SB-900, and SB-910, SU-4 mode makes the Speedlights even more useful. Between Advanced Wireless Lighting and SU-4 mode, I have not come up with a lighting plan that I couldn't execute using Speedlights.

# IV: Lighting Techniques for People and Products



NIKON D750 1/250 SEC. F/5.6 ISO 100

This section looks at lighting techniques for three of the most common types of images: portraits, action shots, and products. In [Chapter 12](#) you'll learn some basic lighting patterns, how and when to use more than one light, and how to tackle environmental portraits. [Chapter 12](#) also covers the gear that I use for portrait photography and how I pack it all up for location work. [Chapter 13](#) introduces how to use Speedlights to photograph action photos and how to use high-speed sync and rear-curtain sync. Finally, [Chapter 14](#) provides tips on creating a work area and the settings to use for product photography.

[CHAPTER 12 Portrait Lighting](#)

[CHAPTER 13 Lighting Action Shots](#)

[CHAPTER 14 Product Photography Lighting](#)

## 12. Portrait Lighting



NIKON D750 ISO 200 1/125 SEC. F/8

A portrait can be a painting, photograph, or drawing of a person, usually showing the face or the head and shoulders. This chapter deals with lighting for photographing portraits of people. Some of the lighting approaches predate photography and are taken from portraits painted by the Old Masters. Rembrandt lighting is still popular today, for example, because it creates a portrait where the subject looks naturally lit. No matter what your needs, you'll find something in this chapter to help: classic lighting strategies, hard versus soft light comparisons, advice for using one and multiple lights, and, finally, approaches for taking environmental portraits where the location needs to be lit as well as the person.

### Shadows and Light

I'll bet you don't like your driver's license photo; no one I've met ever does. There is good reason for this universal dislike: The light blasts out from the flash right at the camera level and hits the subject straight on, creating a flat-looking photo with no shadows—totally unflattering. Shadows create the depth in your images, and you need depth to give your subject a natural look.

You can control the shadows by controlling the light. The position of the light determines where the shadows will fall, what will be brightly lit, and what will be obscured. As you can see in [Figure](#)



**12.1** , the shadows give the person shape and depth.



NIKON D2X ISO 200 1/250 SEC. F/5.6

**Figure 12.1** Using one off-camera flash placed to the camera's left created the shadows across the subject.

We are used to seeing shadows fall at a downward angle because the main light in our lives, the sun, is above us. When you set up light for a portrait, positioning the light above the subject and angling it slightly down makes the portrait look more natural. In **Figure 12.2** , the light creates a downward-pointing shadow on the face, giving our brains enough information to determine that the light illuminating the subject was up high above and streaming downward. Even without us consciously being aware of the light's direction, the image looks natural.



NIKON D2X ISO 100 1/250 SEC. F/5.6

**Figure 12.2** The hat created lines of shadows across the face showing us where the light was coming from. The flash was placed up high and pointed down to mimic the angle of the sun.

As portrait photographers we get to decide where the light is placed and where the shadows fall. The idea is that we can use this to render the subjects in a flattering way and control where the eye travels in the image.

### Light Terms for Portraits

- **Main or key light** : This is the main source of illumination in your portraits. The main light is usually the brightest light that is on the subject, but not always. This light is responsible for providing the main shape to the portrait by producing the main shadow area.

- **Fill light** : This light is used to fill in the shadow areas created by the main light. The fill light must not add any shadows of its own and is usually less powerful than the main light. One method is to use a reflector to bounce some of the main light and add some fill light to the shadow side of the portrait.
- **Background light** : This light is used to illuminate the background separately from the subject. It can help to create separation between the subject and the background and can be brighter than the main light.
- **Accent light** : The accent light is an additional light to the main and fill light. It is used to add just a little more light in an important part of the image. Examples of an accent light could be a hair light (used to add a touch of light to the hair and head of the model) or a kicker (also called a rim light, which adds just a touch of light to the edge of the subject). These accent lights can help separate the subject from the background especially when background is dark.

## Basic Lighting Patterns

When lighting people for portraits, some basic lighting patterns will give you a good starting point. All of these patterns need to be adjusted for your individual subjects, however, as no two faces are exactly the same. In [Chapter 1](#) , I talked about the basic directions that light travels. Now we'll use that information to fine-tune the placement of the lights to create pleasing light patterns.

### Rembrandt Lighting

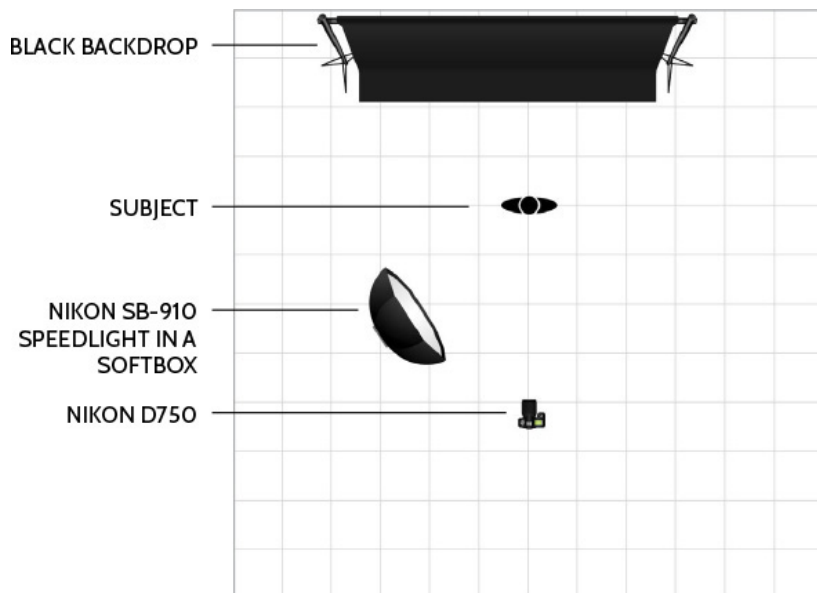
The classic lighting pattern for portraits is *Rembrandt lighting* , named for the seventeen-century Dutch painter. To mimic Rembrandt's signature use of light and shadows, place your main light high and to one side of the subject at about a 45-degree angle and position the subject facing forward toward the camera. It doesn't really matter which side the light is on. You can use a reflector on the other side to open up the shadows a little. The important feature in Rembrandt lighting is the triangle-shaped area of light underneath the eye. One side of the face (the one facing

the main light) is well lit, while the other side is in deeper shadows with the triangle under the eye on the darker side created by the shadow of the nose on the cheek. The classic look is for the triangle under the eye to be no longer than the nose and no wider than the eye. For example, notice, the triangle shape under the eye on the shadow side of the face in [Figure 12.3](#) . I took this portrait with one Speedlight off to the side in a softbox, which created a softer light and shadows with a more gradual transition ( [Figure 12.4](#) ).



NIKON D750 ISO 320 1/250 SEC. F/5.6

**Figure 12.3** Rembrandt lighting produces a characteristic triangle shape under the eye on the shadow side of the face.



**Figure 12.4** You can see the setup of the softbox over to the side and placed at approximately 45 degrees from the subject.

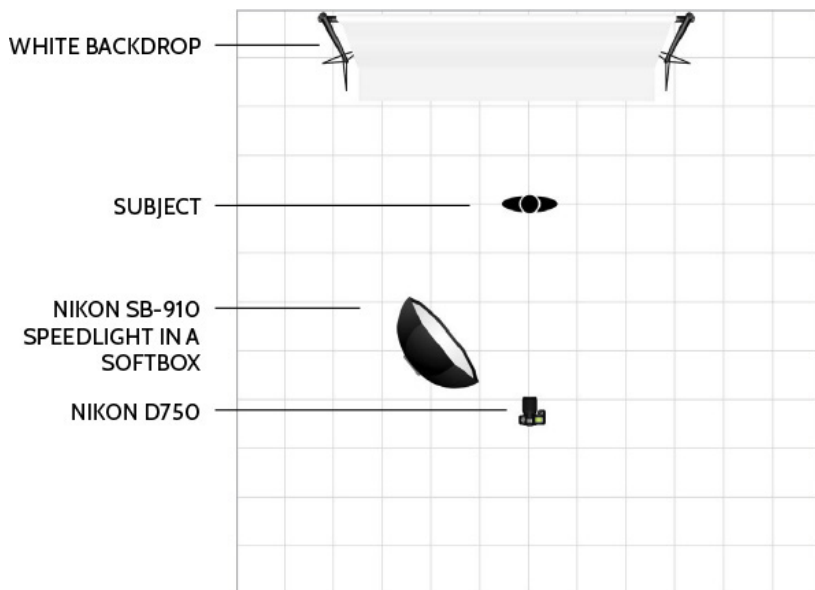
## Loop Lighting

*Loop lighting* produces a small shadow of the subject's nose on the shadow side of the face. The light needs to be placed at about 30 degrees off to the side of the camera and higher than the subject's eye height so that the shadow falls to the side and down. Adjusting the angle of the light changes the way the shadow falls, and for this pattern the light needs more of a downward angle rather than falling across the face as in Rembrandt lighting. Although you can use a second light or a reflector to open up the shadows, be sure that the light is just a little fill light and does not create a second set of shadows on the face. As you can see in [Figure 12.5](#), the small shadow created by the light striking the nose doesn't travel under the eye but instead is close to the nose. With a loop-lighting scheme, the placement of the light also creates a more open photo with less of the shadow side of her face in darkness. This portrait was taken with a single Speedlight placed in a small softbox off to the side ( [Figure 12.6](#) ).



NIKON D750 ISO 200 1/250 SEC. F/5.6

**Figure 12.5** Adjusting the light depending on the facial features is important. Here the small nose creates a small shadow because of the angle of the light.



**Figure 12.6** The SB-910 is placed in a softbox off to the side, but the angle is less than for the Rembrandt lighting in the previous example. Moving the light closer to the camera changes the angle of the shadow on the subject's cheek.

## Butterfly Lighting

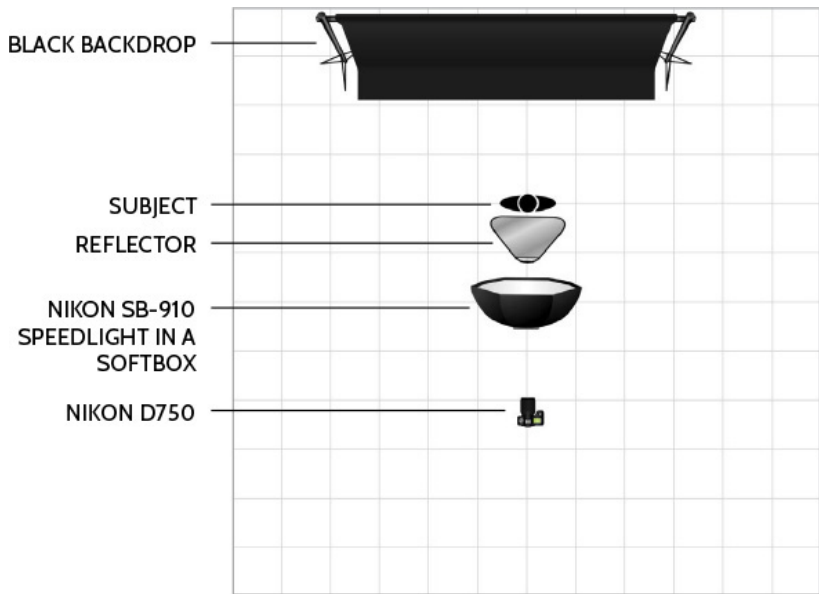
Named for the butterfly-shaped shadow under the nose, the *butterfly lighting* pattern is created when the light is above and in line with the camera. This type of lighting creates a brighter area on the forehead, upper cheeks, and bridge of the nose. You also can place a reflector in front of and under the subject's face to bounce some of the light into the eyes and to open up the shadows a little bit. For [Figure 12.7](#), I used a single SB-910 in a softbox, placing it in front of and above the subject with the light at a downward angle. The subject held a silver reflector facing up to help open the shadows ( [Figure 12.8](#) ).





NIKON D750 ISO 200 1/250 SEC. F/4.5

**Figure 12.7** For the butterfly lighting in this portrait, I used one Speedlight in front and above the subject. A silver reflector bounced the light up into the face, which helped open up the shadows under the chin.



**Figure 12.8** Positioned in line with the subject and camera, the SB-910 in the softbox is up high but aimed downward. The silver reflector is placed to bounce the light up and into the underside of the face, opening up the shadows but not overpowering the main light.

Sometimes referred to as *Paramount lighting*, butterfly lighting is common in fashion and glamour because it tends to work well for woman with high cheekbones and thinner faces. This lighting is more feminine than masculine and more suited to woman than men, however. It tends to make the eye sockets on men look too deep.

## Split Lighting

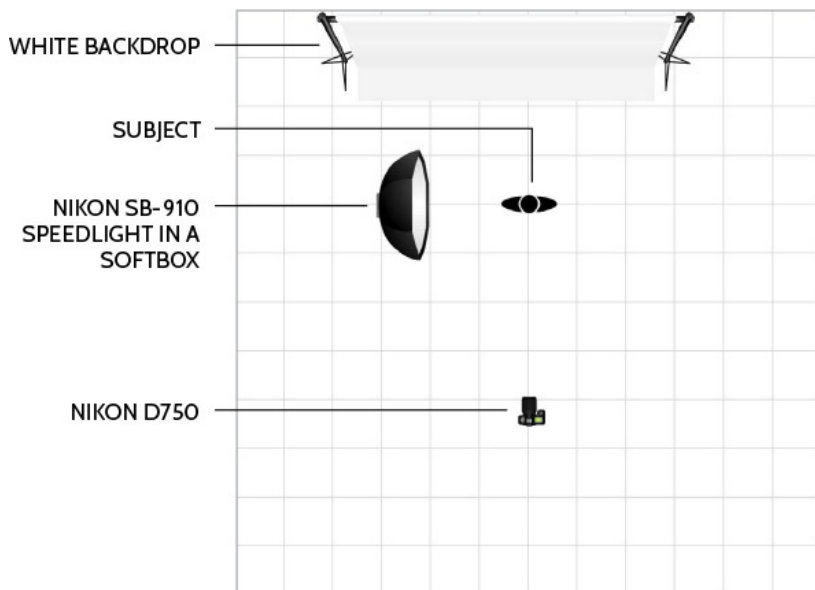
In a *split lighting* pattern, the main light is placed off to the side of the subject at about 90 degrees and positioned at face height or slightly above. The subject looks straight on at the camera. This arrangement lights up half the face and leaves the other half in shadows. Split lighting can help to narrow a face. You can adjust this lighting to create a dramatic portrait with half the face in deep shadows or, by using a fill light to brighten up the shadow side, to be more subtle. Even if you use a fill light, however, you still want a distinct split in the lighting with the transition being right down the middle of the face. In [Figure 12.9](#) you can see the use of a single Speedlight at a right angle to the subject lights up one side of the face and leaves the other side in deep shadow. [Figure 12.10](#)

illustrates the setup I used.



NIKON D750 ISO 200 1/250 SEC. F/5.6

**Figure 12.9** I photographed Sam with a single Speedlight off to his right, lighting up the right side of his face while leaving the left side in deep shadows.



**Figure 12.10** One SB-910 placed in a softbox at a 90-degree angle to the subject creates the split lighting pattern.

## Broad and Short Lighting

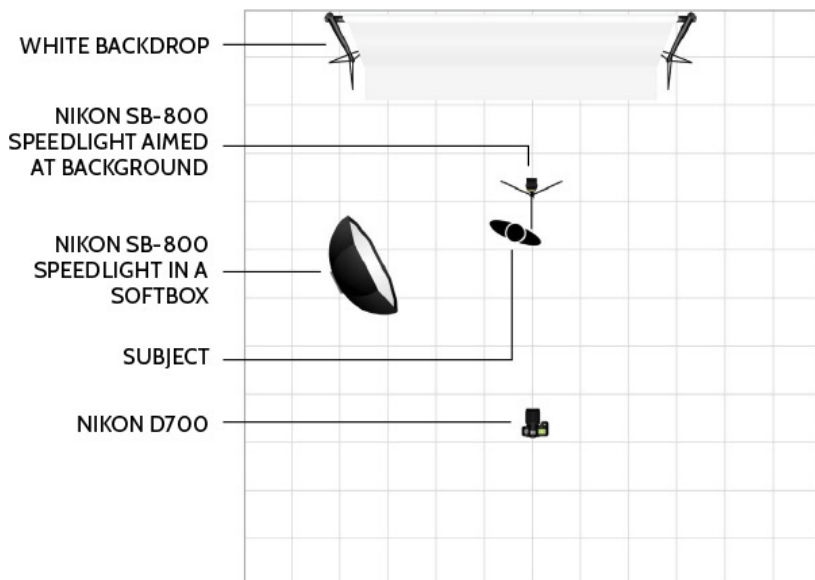
In all the previous lighting patterns, the subject is looking directly at the camera, but this is not always optimal because it can make the subject look bigger and can feel like a passport photo or driver's license. The solution is to have the subject turn his or her head about three-quarters toward the camera, which positions one side of the person's face closer the camera. If the larger side of the face is in the bright light and the shorter side of the face in shadows, that's called *broad lighting* . When the shorter side of the face is brightly lit, then the pattern is called *short lighting* .

In [Figure 12.11](#) you can see that the short side of the face is well lit and the broad side of the face is in heavy shadows created by the combination of the light placement and the turn of the head. [Figure 12.12](#) shows the lighting diagram for the setup used for the short side lighting.



NIKON D700 ISO 200 1/250 SEC. F/5.6

**Figure 12.11** For this portrait, the short side of the face, that is, the side turned away from the camera, is brightly lit.



**Figure 12.12** This lighting diagram shows the setup for the short side lighting used in [Figure 12.11](#) .

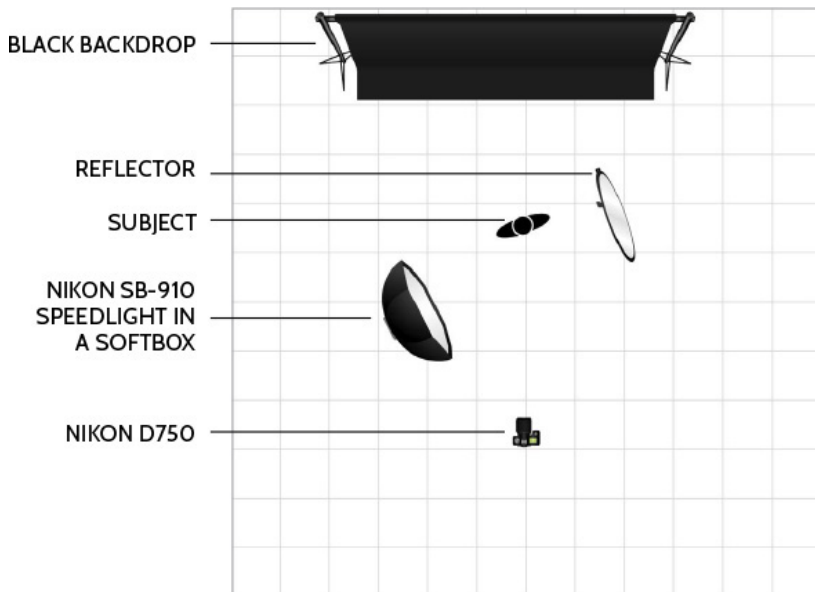
In [Figure 12.13](#) the broad side of the face is lit while the short side is in shadows. To open up those shadows, I placed a silver reflector on the short side to bounce some of the light back, as shown in the lighting diagram for this photo ( [Figure 12.14](#) ).



NIKON D4 ISO 100 1/250 SEC. F/4.5

**Figure 12.13** The light was placed so that the long side of the face was lit and the short side had more shadows. The shadows are not very deep in this photo because a reflector was used to add some light to the short side of the face.





**Figure 12.14** This is the lighting diagram for the setup used in [Figure 12.13](#) .

The placement of the light depends on which way the subject is facing and which side of the face you want lit versus which side you want in shadows. Short lighting can help to slim a fuller face, while broad lighting can help if the subject has a thin face. This type of lighting can also be used to hide any facial issues that the subject might have. A scar or case of acne can be minimized by placing hiding it on the shadow side.

## Soft Light vs. Hard Light

Hard light and soft light are terms you hear photographers throw around all the time. Now it is time to actually start putting each to use when photographing people. As you remember from [Chapter 1](#) , *hard light* has a hard edge between the light and the shadow, while a *soft light* has a smoother transition. For hard light, you use a small light source relative to the subject; for soft light, you use a large light source relative to the subject.

The same light source can be hard or soft depending on its distance from the subject and the type of diffusion you use. If you place an SB-910 Speedlight 5 feet away from your subject, for example, and zoom the head to 200mm, the light will be small and hard. Add the diffusion dome over the head of the flash, change the zoom to 24mm, and the light is a little softer. Plus, because the light bounces around the room, the overall effect is a much softer light.

As you can see in [Figures 12.15](#) and [12.16](#) , the same light at the same distance can be quite different even with just a small change in the diffusion. The room where the photographs were taken had white ceilings, and as the light left the flash, the diffusion dome used in [Figure 12.16](#) bounced the light around to greatly soften it. [Figure 12.17](#) illustrates the lighting setup.



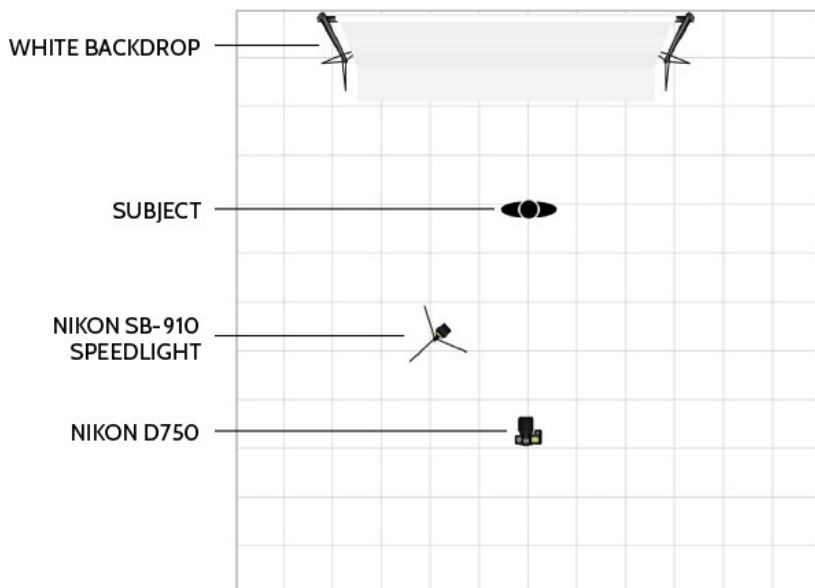
NIKON D750 ISO 200 1/80 SEC. F/5.6

**Figure 12.15** For this image, I placed the SB-910 to the camera's left and zoomed the flash head to 200mm, creating a small, hard light. You can see that the light didn't wrap around the facial features but instead created a lot of hard shadows. You can also tell by the angle of the shadows that the light was placed at head height because the shadows move across the face from side to side.



NIKON D750 ISO 200 1/80 SEC. F/5.6

**Figure 12.16** Without moving the position of the flash or the model, I created a softer light by adding the diffusion dome and changing the zoom position of the flash head from 200mm to 24mm. The light bounced around the room and created a much softer portrait light as you can see by more open shadows.



**Figure 12.17** This is the lighting diagram showing the placement of the light used in [Figures 12.15](#) and [12.16](#) .

In practical terms, if you want a hard light, just move the light further away from the subject and don't put any diffusion material in its path. Want a softer light? Move the light in close and add diffusion. The diffusion can be a softbox, an umbrella, or a diffusion panel.

When it comes to using hard or soft light, you need to decide how you want the subject to be shown. Neither is inherently better or worse than the other, but people tend to like soft more because it is more flattering, especially to faces.

For [Figure 12.18](#) , I placed a large softbox very close to the subject to create a soft and pleasing light across her face. The only place you can even see a shadow is where her hair falls across her cheek.



NIKON D2X ISO 100 1/250 SEC. F/4.5

**Figure 12.18** For this photo of Mia, I used a large softbox as close as I could to her to get the softest possible light.

For the portrait of Ted in [Figure 12.19](#) , I used a single SB-910 Speedlight with a snoot to control the spill of light and placed it quite far away from him to create a much harder light. The light created the mood and tone of the image.



NIKON D4 ISO 100 1/250 SEC. F/4.5

**Figure 12.19** Ted has a look that worked well with a hard light. Here he is lit with a single, off-camera SB-910 and snooted to control the spill of the light.

**Figure 12.20** illustrates a combination of both hard light and soft light. The harder light high up and off to the right of the camera creates a hard shadow on the model, which is especially noticeable under and to the side of her nose. The large reflector placed as close as possible and just out of the frame creates the much softer fill light. There is also a light on the background that is creating the pure white backdrop, but because the subject is actually quite close to the background, a lot of that light is bouncing back and causing the bright areas between her arms and body.



NIKON D4 ISO 100 1/250 SEC. F/4.5

**Figure 12.20** Using a single light and a reflector for the front of this image created an overall soft light, but you can see some harder shadows under and to the side of her nose.

A hard light was used to create the hard shadows on both the face and the clothing of the subject. The original pose was for the subject to be looking straight at the camera, but something distracting happened over to the side and the resulting image ended up being one of the favorites from the shoot ( [Figure 12.21](#) ).





NIKON D4 ISO 400 1/250 SEC. F/5.6

**Figure 12.21** For this photo of Sam, I used a single SB-800 off-camera and you can see the hard shadow under his jaw and on the shirt.

## Using One Light and Two Lights

Every lighting plan has to start somewhere, and for me, it is with the main light. What will be the main source of light in the photo, I ask myself, and what will it show? Using one light to take portraits can render great results and is perfect for those working alone and on a budget because you don't need a lot of gear and can focus on the subject.

Later chapters cover photographing portraits with one light either attached to the camera ([Chapter 15](#)) or triggered by the AWL functions of the CLS ([Chapter 16](#)). In this chapter, you'll learn the basic ideas that you'll put into use in both those later chapters.

My general approach when using a single Speedlight is to want that light to be the largest, softest light possible because that makes just about everyone look good. With just one light, you can use an umbrella or softbox as close to the subject as possible, or you can bounce the light off a wall, ceiling, or reflector. For [Figure 12.22](#) , I used a single Speedlight on the camera aimed right at the white ceiling, which created a soft light on the subject. A solid black background was used against a far wall, far enough away that the light didn't reach it.



NIKON D750 ISO 320 1/200 SEC. F/16

**Figure 12.22** A single SB-910 with a diffusion dome over the flash head mounted on the Nikon D750 and aimed straight up at the ceiling creates a soft bounce light down on the subject.

Moving the flash off the camera opens up more possibilities, allowing for more precise placement of the light. Using an off-camera flash also makes adding a second light source much easier, either another flash or a reflector bouncing additional light into the scene. You can use this second light source as an accent light to help define the subject. In [Figure 12.23](#) , I added a reflector below the subject's face to act as a second light source and bounce the light up to open the shadows especially under the chin. In [Figure 12.24](#) , a second Speedlight adds an accent light on the hair, giving the top of the hair some more depth and separation from the background.



NIKON D750 ISO 320 1/80 SEC. F/5.6

**Figure 12.23** A reflector placed under the face allows some light to bounce up and add some light under the chin to open up the shadows.



NIKON D750 ISO 320 1/80 SEC. F/5.6

**Figure 12.24** Here a second Speedlight adds just a touch of light on the subject's hair.

## Using Three or More Lights

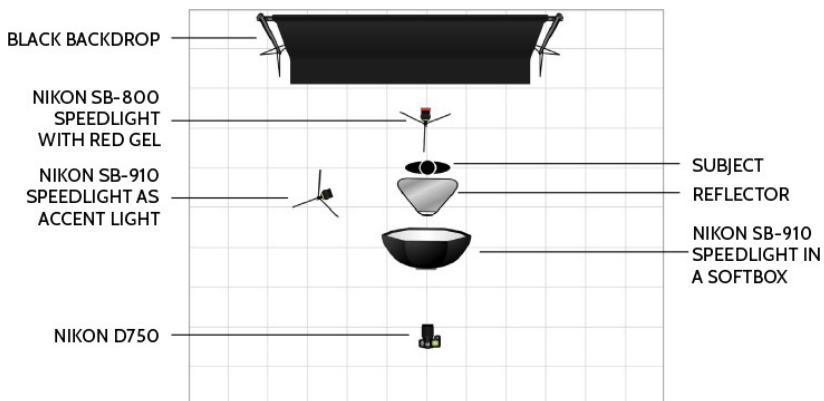
Adding a third light to your portrait setup allows you to add more separation between the subject and background. This light could be some natural light coming in through a window or door, or it could be a Speedlight or two. Adding a Speedlight behind the subject aimed at the background allows you to control the light on the background and the color of the background. On a solid black background, a Speedlight with a red gel adds a touch of color. In [Figure 12.25](#), the red gel changes the background's color and adds some illumination to the whole scene.



NIKON D4 ISO 100 1/250 SEC. F/4.5

**Figure 12.25** The main light is in a softbox, a reflector opens up the shadows, and a second flash acts as an accent light on the hair. A red gel over a third Speedlight now colors the background taking it from black to a dark red.

**Figure 12.26** shows the lighting diagram used for **Figure 12.25** and the placement of the three Speedlights and the reflector. As you can see, it started out as a butterfly lighting pattern, and then I added the two additional Speedlights.



**Figure 12.26** The lighting diagram for the portrait in **Figure 12.25** shows the three Speedlights and reflector.

## **Environmental Portraits**

An environmental portrait or location portrait usually shows the subject in his or her natural environment or somewhere other than in front of a standard, plain studio backdrop. Using Speedlights for this type of portrait really makes a lot of sense: The lights are small and easy to set up, you can carry a lot of them in a single bag, the AWL capabilities allow you to adjust the light quickly (so you don't waste the subject's time), and the wide range of light modifiers available gives you a lot of options.

The challenge of an environmental portrait is that you have to not only make the subject look good but have to make the background and surroundings look good. More importantly, you need to light the environment so that you can add a sense of place and time to the portrait. You get to use the lighting to decide which elements you will draw attention to and which you will allow to fade into the background. It is up to you as the photographer to decide which parts of the image the viewer looks at based on which elements help to tell the story and which elements don't. You want to be able to light the parts that matter and avoid the parts that don't.

You get to tell a real story with these types of images as compared to a straight studio portrait, but it takes a lot more planning and forethought than just putting a person against a plain backdrop. You need to think ahead and plan out the shoot before picking up the camera or even setting up a light.

### **Before the Shoot**

Environmental portraits take planning to make the best use of your time. There are some things you can do before the shoot that will save you time, keep you organized, and allow you to make the best of the limited time with the subject. Occasionally, you get an unlimited amount of time, but in my experience those shoots are rare. Often you get less time than you want.

### **Know Your Subject**

The more you know about your subject, the easier it will be to tell the person's story. A little research can really help, especially if the subject of the portrait does a job or has a pastime that you don't know intimately. One of the best ways to get to know your subject is to talk to the person before the shoot. All the information you gather will help you come up with the best spot to take the

portrait.

I wanted to photograph my friend Alex in his office since the first time I saw it. Alex is a color artist in the comic book industry and has worked on some of the most famous characters, including Batman, the Flash, and the Green Lantern. Before I set up for the shoot, I already knew that I needed to include some of his office's Batman items in the photo. While talking to Alex, I also found out that the Captain America statue in his office has some personal significance, so it needed to be part of the shot, as well. I gathered all this information before I started setting up the lights. You can see from [Figure 12.27](#) that Alex had quite a lot of Batman items to pick from. This shot also shows the two Speedlights with Rogue Grids on them that I used to control the lights striking the Captain America and Batman statues.



NIKON D750 ISO 320 1/10 SEC. F/11

**Figure 12.27** Both the Captain America and Batman statues needed their own light sources to separate them from the rest of the office.

## Tell the Right Story

To help tell the story in your environmental portrait, you need to decide which parts of the scene get illuminated and which parts need to fade into the background. The viewer's eye will be drawn to the brightest, sharpest area of the image, so you can control where the viewer looks just by either lighting something up or keeping it in shadows.



A couple of extra Speedlights can come in handy for storytelling because you can strategically place them to selectively add some light or highlights just where you want them. If you have only one light, you need to make sure that it is on the main subject—but, don't assume “the subject” means “the person.” For the purposes of your story, the subject might be the location itself or something that the person is working on.

## Be Prepared

Many times shooting an environmental portrait takes place during work hours in a working environment, making it important to get in and set up as quickly as possible so as to not waste precious time. Here are a few things that I do before the shoot to cut down on the setup time:

- **Set up flashes early** : Before I even get to the location, I decide which of my flashes are going to be remotes and what I am going to use as the Commander. Next, I set them all to the same channel and assign each of the remote flashes to the different groups I think I am going to use. I then use small pieces of white gaffer tape to note each flash's group, not only marking the flash units but also the flash cases so that I know which flash I want to use where when I open the cases on location ( [Figure 12.28](#) ).



**Figure 12.28** Each Speedlight and each Speedlight bag is labeled with the letter of the group in which I plan on using

that light. Of course, this can all change on location, but it helps to keep me organized while on a shoot.

- **Charge and install batteries** : I use rechargeable batteries that need to be charged up prior to use, so I make sure that the batteries are fully charged and in each unit I plan to use. This saves time when I get to the location because I know each flash is ready to go. Each step that I can save on location gives me a little more time to take photographs.
- **Pack smart** : It really helps to have a system when you pack for a shoot. I use two Pelican cases for the actual Speedlights and the small modifiers. When I get to the location, I open the Speedlight case, and everything is exactly where it is supposed to be. This makes setting up easy, and if I need anything, I know where it is immediately.

## **Have a Plan, but Be Flexible**

Before any shoot, especially one that will take place on location, I create a plan that describes the following:

- What I want to photograph
- Where I will place the lights
- Gear I will need

This plan may be very detailed with the exact locations of the light stands, which flashes will be used where, which group each flash will be in, and what light modifiers will be used. Or, the plan may be more of an outline or an idea with a general concept of what I am trying to capture. The difference depends on how much information I gather before the shoot and, specifically, if I know the location. For example, the offices in [Figure 12.29](#) were under construction, so I had a big open area that allowed me plenty of space to set up a background and lights.



NIKON D750 ISO 100 1/60 SEC. F/6.3

**Figure 12.29** A construction site made a great place to take a few on-location headshots. There was plenty of space to work and no reflective surfaces.

Despite all the preparatory work that I do, I still know that my plan can all go out the window the minute the shoot starts. There are so many different things that can go wrong or need to be changed at the last minute. The best thing you can do is be prepared to change your plans on the fly.

Sometimes I have no idea what a shoot's location is going to be like at all. One of the every first shoots I ever did using SB-800s in the field was for musician John Ginty. The shoot was to take place between the sound check and actual show at the San Diego House of Blues in one of the dressing rooms. I had no idea what the room looked like or how long we would have to shoot. Luckily, the dressing room had great couch, so I had John sit and turn slightly to me; then I placed a single SB-800 across from him on the counter using the built-in flash stand and triggered it with a second SB-800 on the camera acting as the Commander. Looking back at the photo now ( [Figure 12.30](#) ) more than 10 years later, I wish I had placed a flag between the light and the wall. This would have stopped the reflection from the flash from bouncing off the mural, but it was the first time I was using Speedlights on location for this type of lighting.



NIKON D2X ISO 250 1/60 SEC. F/4.5

**Figure 12.30** Musician John Ginty photographed in the dressing room of the House of Blues while I used a single off-camera SB-800 Speedlight for this portrait.

## Taking the Portrait

Environmental portraits can be a lot of fun to take but far more frustrating than the basic studio portrait at the same time. The location could have numerous surfaces bouncing the light all over the place or a brightly colored wall that affects the color of the light as it bounces back at the subject. You may find you don't have as much space as you need to set up the big umbrella or softbox as planned, and time always seems in short supply.

As an environmental photographer, it is your job to resolve the location's challenges and come away with the portrait you envisioned. No one plan will work every time, but a consistent approach to each shoot will help you work it until you get the results you (or the client) are happy with. Here are the steps I consistently follow:

1. **Consider the ambient light :** The most important light at the location is the light that is already there. The ambient light will drive everything else you do. If you are shooting in an office building with a wall of west-facing windows, then the afternoon sun is going to be a factor. If there is a ton of light streaming in, consider just adding a reflector to the opposite side and maybe a couple of Speedlights to add some spots of illumination to key items in the office. If you

are shooting inside an empty sports arena with all the lights off, then that lack of illumination is going to be the main factor. In this case, you have to provide all the lighting and build the scene from scratch. In both scenarios, however, the ambient lighting is what dictates your next moves.

2. **Control the ambient light** : Sometimes controlling the ambient light in the scene is as simple as just turning off the overhead lights or drawing the shades. You can use your camera to control the ambient light by adjusting the shutter speed. Remember, you can control the amount of ambient light that the sensor records, but no setting on the camera can change the direction or the quality of the light. For that to happen, you need to either add your own light or use a diffuser, reflector, or other light-shaping tool. You cannot make hard light into soft light just by changing the shutter speed. What you can do is reduce the effect the ambient has on the exposure and then add the lights where you want them to go. How much of the ambient light is used is up to you.
3. **Use the main light for the main subject** : You can go about building the light in your scene in lots of different ways, but my preference is to start with the light that is going to illuminate the main subject. This main, or key, light is what the other lights build around. For the photograph of Alex at his desk, the main light is the light that is illuminating his face. This was an SB-800 that I placed so the light bounced off the computer screen, which made it look more natural because we all know that computer screens emit light. In [Figure 12.31](#) you can see the placement of the Speedlight just below and behind the monitor. I used a Justin clamp to fine-tune the position of the light and made sure that the sensor on the flash is facing where it could see the Commander. This light was set to group A.



**Figure 12.31** The main light used to illuminate Alex is an SB-800 mounted so that the light is bounced off the computer monitor. I added a small reflector to the screen to help the light bounce back. The reflector is just a piece of white paper taped to the screen with gaffer tape.

4. **Build the scene :** After setting the main light, I build up the lighting working backward from the most important lights to the least important lights. This usually means the accent lights and then the background lights. To stay consistent and help control the different zones of lighting, make the accent lights group B and the background lights group C. As you add each light, take a photo to make sure that the newly added light does not change the overall light in the scene. Keep in mind that if all the groups are using TTL, adding lights can affect the way the scene looks to the camera, and the output of the other groups can be affected, as well. This is why adding a single light at a time as you build up the scene is a good idea.

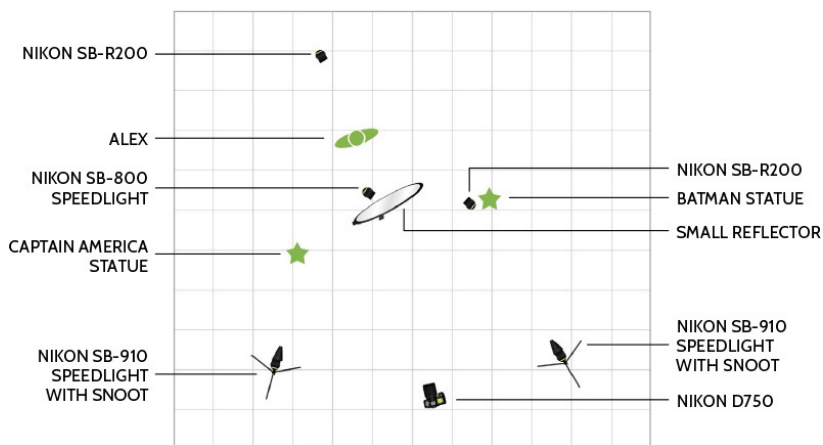
For the final photo of Alex sitting and working at his desk, I used five Speedlights to keep the focus on Alex but at the same time highlight the cool parts of his office ( [Figure 12.32](#) ). The lighting in [Figure 12.33](#) consists of the following:

- One SB-800 mounted on a Justin clamp and aimed at the



computer monitor to light up his face

- Two SB-910s with snoots mounted on light stands and aimed at the Captain America and Batman figures on the desk
- One SB-R200 hidden behind the Batman figure to illuminate the logo on the back of the monitor
- One SB-R200 on a shelf behind Alex's head fired at the camera to give some separation between Alex and the background



**Figure 12.32** The five Speedlights in this lighting diagram for the Alex Sinclair environmental portrait are all controlled by the SU-800 on the camera.



NIKON D750 ISO 400 1/250 SEC. F/11



**Figure 12.33** The final image of comic book color artist Alex Sinclair in his home office, or, as I like to call it, his Bat Cave.

All these Speedlights were controlled by the SU-800 on my Nikon D750.

## Headshots

Sometimes on-location portraits don't involve much environment at all. For instance, businesses frequently hire me to take a series of headshots right on location at their offices. Many times the company wants all the headshots to look the same, so it just makes sense to do them all at the same time with the same lighting setup. Speedlights, some light modifiers, and a background can make these jobs a snap.

The goal is to keep it simple with as large a light source as possible to create as soft a light as possible; this arrangement works best for most people. The setup usually consists of a flash in a softbox placed at about 45 degrees to one side of the subject and then a second flash in an umbrella placed at 45 degrees to the other side of the subject acting as a very soft fill. I then control the power of these two remote Speedlights from the Commander on the camera. The light in the softbox is group A, the light in the umbrella is group B, and I set group B at a lower output than group A. If I need to light the background separately, then I set it to group C, allowing me to control the three lights independently. [Figures 12.34](#) through [12.36](#) show some examples.



NIKON D4 ISO 200 1/250 SEC. F/5.6

**Figure 12.34** For this headshot taken at the home office, one light, placed up and to the left of the camera, created a soft light that wrapped around the face.



NIKON D4 ISO 200 1/200 SEC. F/5.6

**Figure 12.35** For Ashley's headshot, I used two Speedlights, one on either side, and because I could control the power of each separately, I could control where the shadows would fall by increasing or decreasing the power of the two groups.



NIKON D4 ISO 200 1/60 SEC. F/5.6

**Figure 12.36** A simple two-light setup and a white backdrop created this headshot that looks as if it was shot against a gray backdrop. The TTL mode on the flash will try to have the exposure as a middle gray, which means unless you add a lot more light, the white backdrop is underexposed while the subject is properly exposed.

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## Location Lighting Packing Checklist

Being organized when on a location shoot is vital. Nothing can make you look less professional than having to scramble around looking for something while the subject sits and waits. With this in mind, I put together a checklist that helps keep me organized when I pack for a shoot. It doesn't matter what combination of bags you use; just look at what you pack in each bag and make a list so that

the same gear goes in the same place each time. I currently use two Pelican cases ([www.pelican.com](http://www.pelican.com)) for the Speedlights and small light modifiers, a Think Tank Photo Shape Shifter backpack ([www.thinktankphoto.com](http://www.thinktankphoto.com)) for the camera and lenses, and a large light-stand bag for the stands and backdrops. I pack these bags the same way each time.

In the camera bag, currently the ThinkTankPhoto Shapeshifter backpack shown in **Figures 12.37** and **12.38**, I pack the following:

- **Camera bodies** : I currently use the Nikon D4 and Nikon D750 as my camera bodies. I always take both with me just in case. If one has an issue, then I have a second body ready to use.
- **Lenses** : I take the lenses I think I will need for the shoot, usually the Nikkor 24–70mm f/2.8 and the Nikkor 70–200mm f/2.8. I like to use the longer focal lengths when photographing portraits because they are more flattering to the subject.
- **Camera batteries** : I always carry an extra set of fully charged batteries for each camera with me. It would be a nightmare to run out of power during a shoot.
- **Memory cards** : I always have extra memory cards with me, just in case. True, the high capacity of current memory cards means that the chance of actually running out of space is low, but why risk it?



**Figure 12.37** Two camera bodies and two lenses along with spare batteries and plenty of memory cards all go into the Shapeshifter backpack.



**Figure 12.38** The Shapeshifter backpack is actually designed to hold a lot more than two cameras and two lenses. It has space for a laptop and enough pockets to keep any photographer happy. If I am doing a group shot, I might add a wide-angle lens or some other gear; the bag has plenty of space.

The Speedlight bag I carry is shown in [Figures 12.39](#) and [12.40](#) and contains the following gear:

- **Speedlights** : Over the years I have purchased a few Speedlights including some SB-800s and SB-910s. I tend to bring all the flashes with me just in case I need to add a little more light somewhere, but the reality is that I usually just need a light or two. I also have an SU-800 as a Commander, and I will often add the SB-R200s because they take up very little space and can be really useful in adding a touch of light in the image.
- **TTL cords** : Nothing can be more frustrating than the line of sight not working properly when on location. Having a TTL cord allows me to reposition the Commander unit off the top of the flash.
- **Batteries** : I use Think Tank Photo Cable Management bags to hold the fully charged batteries. I have a second bag that I reserve for batteries that are used, so I know which batteries need to be recharged and which are already used.
- **Gels** : Another Think Tank Photo Cable Management bag

holds all my gels. This includes the round gels for the Rogue Grid and the regular gels.

- **Justin clamps** : These clamps are slightly bulky, but they are so useful that I make sure I have one or two of them in the bag just in case I have to use them. Having them in the same bag as the Speedlights allows me to get the lights all set up in one spot.
- **Gaffer tape** : You never know what you will need a piece of gaffer tape for and knowing exactly where it is means that you can get to it quickly. Many times I will use a piece or two to make a mark where the subject needs to stand, allowing me to get consistent results.
- **Battery charger** : This one is optional. If I know I will be out for a longer job or on the road for an extended period, I will take the battery charger along so that I can recharge the batteries on the road.



**Figure 12.39** Here are the pieces that go into the Speedlight case; I know it looks like a lot of stuff, but it all fits.





**Figure 12.40** All the equipment from [Figure 12.39](#) fits into the single case with a little room to spare.

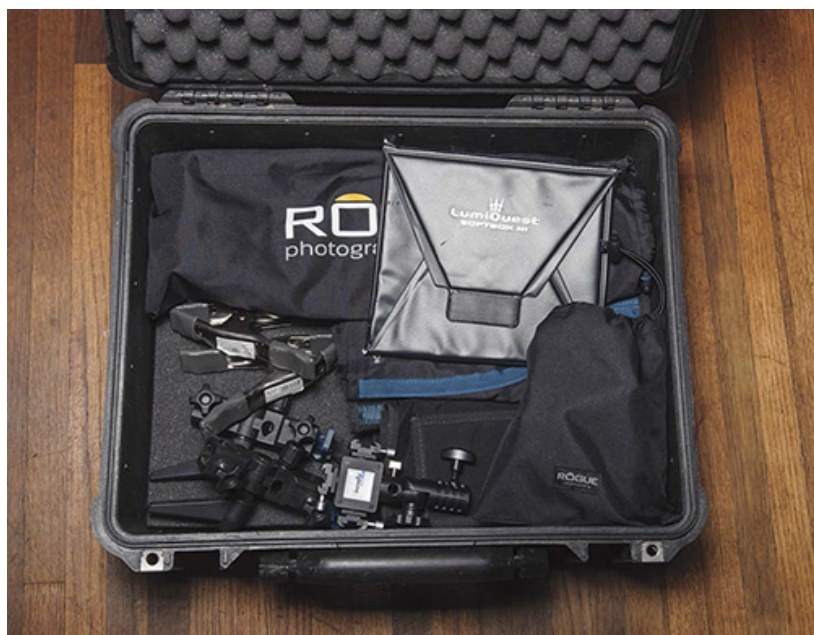
I pack an array of equipment in the modifier bag, but I try to leave a little space in this one in case I need to add something specific for the shoot. The gear listed here is shown in [Figure 12.41](#) and all packed in [Figure 12.42](#) :

- **Assorted rogue FlashBenders** : I love these light modifiers for their ability to shape the light and for the fact that they take up a very little space when packed. I pack a variety in different sizes from the small flags to the large softbox kit.
- **Rogue Grids** : These grids are perfect for small flash use, and I have a couple in the bag at all times. They can be used to add a controllable splash of light just where you need it and nowhere else.
- **Additional light modifiers** : I have an assortment of modifiers from Honl and LumiQuest ([www.honlphoto.com](http://www.honlphoto.com) and [lumiquest.com](http://lumiquest.com) ) that live in this bag.
- **Clamps** : You never know when you will need to clamp something. I try to always have a few handy.
- **Umbrella brackets** : I keep all the umbrella brackets in the this bag as well. I tend to use the Justin clamps more than

the basic umbrella brackets, but at times these are needed. I also keep a Joe McNally Lastolite TriFlash bracket ([www.lastolite.com](http://www.lastolite.com)) and other assorted mounting hardware in this bag.



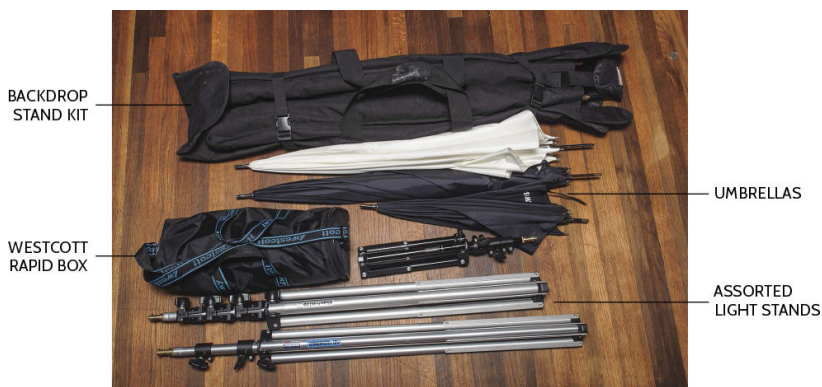
**Figure 12.41** This case is full of small flash modifiers, mostly from the Rogue FlashBender line.



**Figure 12.42** With all the modifiers packed in the case, there is still plenty of space in case I need to add anything.

Finally, the light-stand bag carries all the stands and the Westcott Rapid Boxes as shown in [Figures 12.43](#) and [12.44](#) :

- **Umbrellas** : I have a couple of different size umbrellas in this bag because they are light, take up very little space, and can make a huge difference when on location.
- **Background stand kit** : A background stand kit consists of two light stands and a bar that goes between them to create a way to hang a cloth backdrop. You can also use it to secure a pop-up background with a couple of clamps.
- **Assorted light stands** : I carry a minimum of three light stands with me, two full size and one shorter for use in the background.
- **Softboxes** : The Westcott Rapid Box softboxes are pretty compact and come in their own travel cases. Because they are small, they fit in this big bag.



**Figure 12.43** Here is the gear that is packed into the light-stand bag. If I know I'll need an extra light stand or other gear, it gets crammed in with this stuff.



**Figure 12.44** This older TransPac case from Photoflex (<http://>

[photoflex.com](http://photoflex.com) ) holds all the light stands and other gear shown in [Figure 12.43](#) . It has seen better days, but it still holds the gear needed for a location shoot.

The last pieces of gear that I take with me don't fit easily into any of the bags I use. The reflectors, diffusers, and pop-up backgrounds all fold pretty small and flat, but they are just too big to fit in any of my bags ( [Figure 12.45](#) ).



**Figure 12.45** The pop-up background, a couple of reflectors, and a Lastotile diffuser make up the rest of my gear used for location shoots.

This all might seem like a lot of gear, but compared to hauling a set of studio lights around, this kit is really quite portable and easily managed by one photographer.

Create a system that works for you and stick with it. It makes working on location a lot easier.

## Final Thoughts

One last factor that influences how your portraits look has nothing to do with the light. It has to do with making your subject feel comfortable in front of the camera. One way to do that is to be confident and sure of yourself and of your lighting setups. I suggest that you practice setting up the basic lighting with just one light. The more you practice, the easier it will be to see where you need to make small adjustments to take your portraits to the next step. When you are confident in your lighting, you can spend more time interacting with your subject, which results in better images.



## 13. Lighting Action Shots



NIKON D4 ISO 400 1/5000 SEC. F/4

When photographing action and sports, you can use a Speedlight to freeze the action for a more dramatic portrait. This chapter explains the settings used to capture action using fast shutter speeds combined with the High-Speed Sync setting, as well as discusses how to show motion using the Rear-Curtain Sync setting combined with slower shutter speeds. Keep in mind, however, that using a small flash to capture the action creates an action *portrait*, and you shouldn't try this approach to capture a sporting event as it unfolds. For example, you won't see a photographer on the sidelines of a football game using an on-camera flash, nor will you see a bunch of light stands sitting on the sidelines of a track-and-field event. But you can set up great action portraits using the techniques in this chapter.

### Freezing Action

Freezing action using a flash can produce great images when done right. It can also produce images that look as if the flash just blasted light into the scene, destroying the mood of the image and creating a photo that just looks wrong. To understand how to achieve the first and avoid the second scenario, you need to revisit sync speeds and the High-Speed Sync feature. As you may

remember, sync speed was covered in [Chapter 9](#) , but now you need to examine it more closely, in particular how it relates to freezing action.

## Sync Speed

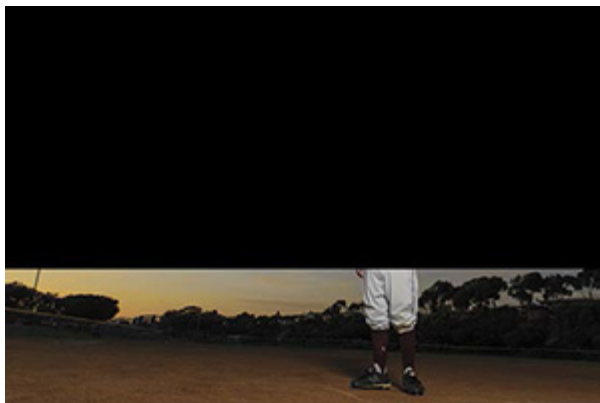
The *sync speed* is the highest shutter speed you can use that will still allow the flash to fire a single time between when the front curtain opens and the rear curtain closes. For most cameras, this is a shutter speed of 1/200 or 1/250 second. So, if you have the Speedlight on the camera (or attached via a TTL cable) and are using a shutter speed of 1/250 second or less, the flash will fire after the front curtain is moved all the way out of the way and before the rear curtain starts to close.

The issue when photographing fast-moving subjects is that a shutter speed of 1/250 second is not fast enough to freeze the action. For example, if you are photographing a tennis player serving a ball, you need a shutter speed of 1/1000 or even higher, and to capture the water drops frozen in the air during the water polo photo that opened this chapter, I used a shutter speed of 1/5000 second.

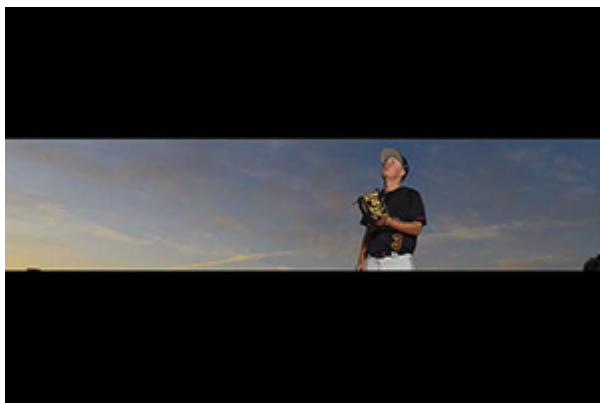
## High-Speed Sync

With the High-Speed Sync capability of the Nikon Creative Lighting System, the flash fires multiple times as the front and rear curtains travel across the sensor. What this means in practical terms is that the flash has to fire multiple times during the exposure, and each of those flashes of light needs to be at the same power or the exposure will change in the middle of the shot. As covered in [Chapter 9](#) , you can turn the High-Speed Sync on in your camera using the menu system.

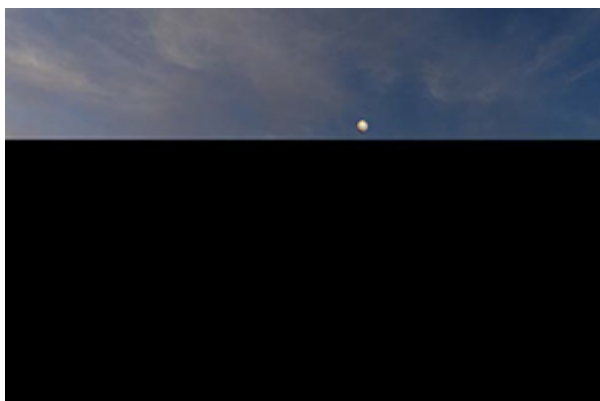
The amazing part of the CLS and Advanced Wireless Lighting is that the High-Speed Sync feature works with the off-camera flashes, meaning you can trigger the off-camera flashes and get proper exposures at shutter speeds higher than 1/250 second. In [Figures 13.1](#) through [13.3](#) you can see the sequence of events: As the front curtain opens, the Speedlight fires; then, as the rear curtain starts to close, the flash fires again and again, creating an even exposure throughout the whole shot to produce [Figure 13.4](#) .



**Figure 13.1** The flash fires as the front curtain shutter opens before the rear curtain starts to close.



**Figure 13.2** The flash fires again when a new piece of the scene is exposed to the sensor as the front curtain opens and the rear curtain closes.



**Figure 13.3** The rear curtain is fully open, and the flash fires again as the rear curtain is about to close.





NIKON D4 ISO 800 1/500 SEC. F/6.3

**Figure 13.4** The final image is properly exposed and doesn't look as if it was lit with multiple bursts of light.

There are two great reasons to use the High-Speed Sync feature when taking these types of images. The first is, obviously, to freeze the action, but it is the second reason that can really add that something extra to the photograph. By using High-Speed Sync, you can use a wider aperture to create a more shallow depth of field in bright sunlight and still get great lighting. If I am photographing outside at a 1/2000-second shutter speed and at f/3.2, for example, the background will go out of focus, keeping the attention on the main subject.

## Flash Power

When you're using Speedlights in the High-Speed Sync mode, the flash needs to fire multiple times in quick succession. The flash fires so fast that it looks like a single burst of light, but it actually a series of bursts timed to match with the front and rear curtain traveling across the sensor. This means that the flash needs power, *lots* of power. The first, and most important, thing you can do is make sure you have freshly charged batteries so that the flash gets all the power it can. The second thing you can do is use the remote flashes in Manual mode so that there is no pre-flash, which means the flash can use all its power for the main illumination bursts of light. You will also want to make sure you have plenty of spare batteries so that you don't run out of power. The batteries will drain much faster when pushed using the High-Speed Sync feature.

## Multiple Flashes

The best way to deal with the need for more power is to use more than a single Speedlight. You can use multiple Speedlights grouped together to create a single light source. If you use two Speedlights at half power, then they each need only half the power to match a single Speedlight on full power. This cuts down on the recycle time and extends the life of each flash.

Using a multiple flash bracket is the key because it allows you to use multiple Speedlights in the same modifier. My favorite flash holder is the McNally TriGrip (Lastolite, [www.lastolite.com](http://www.lastolite.com)), which holds three Speedlights and allows you to rotate the flashes. This enables you to position the Speedlights so that the sensor can see the Commander unit when the flashes are in the TriGrip. You can see the TriGrip in use at the end of the next section, when I use three Speedlights to illuminate Tim performing a karate kick.

## Showing Motion

It's easy to freeze action using a fast shutter speed and the High-Speed Sync feature. It is a lot more difficult to show motion in a single frame. If you use a longer shutter speed, then the subject will be blurry as it moves through the frame. A little blur is a good thing because it shows movement; a lot of blur is usually a bad thing because the subject becomes difficult to see. In [Figure 13.5](#), the slight blur on the back wheel shows that the racing wheelchair was in motion.



NIKON D2X ISO 640 1/100 SEC. F/3.5

**Figure 13.5** The racing wheelchairs are moving extremely rapidly, and the blur in the wheel shows that. If I'd used a faster shutter speed, the motion would have been totally frozen,

making the subjects look like they were standing still.

When adding a flash to the mix, the solution is to use a shutter speed slow enough to see the motion and then use the flash to freeze the action at the end of the exposure. The default mode on most cameras when you use a Speedlight is for the flash to fire as soon as the front curtain opens all the way, which is at the beginning of the exposure. You can change this so that the flash fires right before the rear curtain closes, which is at the end of the exposure. This doesn't matter much when using fast shutter speeds but makes a world of difference when using slower shutter speeds. Compare [Figures 13.6](#) and [13.7](#) , for example. For the first shot, the flash fired at the beginning of the exposure, meaning the motion was captured *after* the flash fired. As you can see in [Figure 13.6](#) , this resulted in light trails that indicate motion (the lines of green) *in front* of the toy car. I captured the same scene in [Figure 13.7](#) , but this time, the flash fired at the end of the exposure and the motion appeared *behind* the subject. I know that in [Figure 13.6](#) it appears that the car is moving backward and it looks wrong, but that is what happens when the flash fires at the start of the exposure and then the subject moves.



NIKON D700 ISO 400 1/2 SEC. F/5.6

**Figure 13.6** I photographed this remote-controlled toy car using Front-Curtain Sync with the light trails in the front of the car.



NIKON D700 ISO 400 1/2 SEC. F/5.6

**Figure 13.7** Photographing the remote-controlled car using Rear-Curtain Sync puts the light trails behind the car.

Setting when the flash fires is done on the camera. The setting is usually called Rear-Curtain Sync or Slow Rear-Curtain Sync depending on the camera's exposure mode. Look in the camera manual for your specific camera for exact details of how to set the flash mode to Rear-Curtain Sync.

For [Figure 13.8](#) I used a shutter speed of 1/1.3-second shutter speed to create an interesting effect: You can actually see the shadow of Tim behind him as he kicks. The shadow is where Tim was standing when the shutter was opened; then he kicked, and the flash fired at the end of the exposure, freezing Tim in place in mid-kick.



NIKON D750 ISO 400 1.3 SEC. F/5.6

**Figure 13.8** I captured Tim performing a snap kick using a slow shutter speed and Rear-Curtain Sync.

To capture this shot, I used three off-camera flashes mounted in a multiple flash holder and bounced out of an umbrella ( [Figure 13.9](#) ). The Nikon CLS and Advanced Wireless Lighting allows you to fire the off-camera flashes using Rear-Curtain Sync.



**Figure 13.9** You can see the setup used to capture the image in [Figure 13.8](#) .

I used the same technique for [Figure 13.10](#) . This time, instead of moving from right to left through the frame, Tim just shifted from his right to left and moved the escrima sticks at the same time. The 1/1.3 shutter speed and the Rear-Curtain Sync froze Tim at the end of the exposure.



NIKON D750 ISO 400 1.3 SEC. F/5.6

**Figure 13.10** The subject moving during the exposure before the flash fired caused the double-exposure look to the image. The flash firing at the end of the exposure created the sharp focus on Tim.

### Note

Another way to show motion is to use the Repeating Flash functions of the Speedlights, which is covered in [Chapter 10](#) .

## Final Thoughts

Capturing action with Speedlights, especially when using the Speedlights off-camera, is a lot easier with the High-Speed Sync and Advanced Wireless Lighting features that are part of Nikon's



Creative Lighting System. The ability of the camera to use shutter speeds higher than 1/200 second means you can freeze the action and still add the light from your Speedlight. [Chapter 18](#) walks you through four examples of action portraits from start to finish using the ideas discussed in this chapter. You'll go behind the scenes not only for my shoots with Tim and Andy but also for action sessions on the golf course and soccer field. For example, when taking image of Andy ( [Figure 13.11](#) ) I used a slower shutter speed along with a Rear-Curtain Sync and a panning motion with the camera to capture the motion of the mountain bike moving on the trail.



NIKON D750 ISO 100 1/20 SEC. F/8

**Figure 13.11** With an SB-910 Speedlight on the camera and firing at the end of the exposure, I was able to freeze Andy during his ride to show the motion.

## 14. Product Photography Lighting



NIKON D4 ISO 100 1/250 SEC. F/4.5

Nikon Speedlights work really well when photographing products. They provide plenty of power, have a small footprint, are easily triggered off-camera, and have plenty of light modifiers to shape their light. All these factors make them ideally suited for photographing products of all sizes. I find it easier to set up a small product shoot with a couple of Speedlights than to set up studio strobes—and I get the same results. This chapter covers the basics of setting up and shooting products using small flashes.

### Product Photography Basics

When you shop in a brick-and-mortar store, you can look at the product you want to buy, considering its size, color, and texture in person. When you're shopping on the Internet, you don't have the luxury of being able to pick up the product. Instead, you base your decision to buy on a photograph. The product photographer's role has never been more important: Your images need to be accurate representations of the product and, at the same time, make it look as appealing as possible to potential purchasers.

Photographing products can be more difficult than photographing people because lighting issues, color issues, and blemishes can be more difficult to fix in post-production. The lighting needs to be spot-on when the photo is taken. The person looking at the product

photograph needs to know what the product will look like in person—not simply its shape and color but also whether it is opaque, translucent, textured, or smooth. The direction of the light and its hardness or softness all play roles in getting the best shot possible ( [Figure 14.1](#) ).



NIKON D4 ISO 100 1/250 SEC. F/4.5

**Figure 14.1** This simple bell pepper was photographed with a single off-camera SB-910 in a softbox. The light and shadows give the pepper its shape and show the texture.

Obviously, the right flash settings are important to your success. When shooting products, I generally use Manual flash mode to control the flash output, rather than TTL. Most of the time backgrounds for product shots are either all black or white, which can cause the TTL metering readings to either overexpose the image (when the background is black) or underexpose the image (when the background is white).

The basic lighting terms and placement are the same for products as they are for portraits: the main light, fill light, accent light, and background light. When photographing shiny products, you'll find the use of bounced light or light modifiers like a softbox to be extremely important. When you photograph something metallic or just plain shiny, the light that illuminates the object bounces off the subject. That reflected light is what the camera records.

Compare [Figures 14.2](#) and [14.3](#) to see the difference between using a softbox to light a knife blade and aiming the flash directly at the reflective blade surface.



NIKON D4 ISO 100 1/250 SEC. F/14

**Figure 14.2** Photographing a reflective object like a pocket knife with a softbox creates an even lighting and reflection.



NIKON D4 ISO 100 1/250 SEC. F/14

**Figure 14.3** A bare flash creates a harder light that just doesn't look good.

You can control how hard or soft the light will appear on the product by changing the distance between the light and the product. This is especially important when working on small objects because the smallest changes in the position of the light can have big effects.

The distance between the light and the subject can also have a huge effect on how much light hits the background. Remember the Inverse Square Law discussed in [Chapter 1](#) : The amount of light falls off drastically over distance. The shorter the distance between the light and the subject, the faster the light falls off. When put into practice, this theory means you can control the look of your shot's background. As you can see in [Figures 14.4](#) and [14.5](#) , the distance of the light to the main subject can make a big difference in how the background is rendered. With the light close to the

main subject, the light doesn't reach the background, so it is rendered black. When the distance between the light and the subject is increased, however, more light reaches the background and what was black is now lighter.



NIKON D750 ISO 800 1/160 SEC. F/32

**Figure 14.4** The single Speedlight in a softbox is close to the camera for this photo of the Nikon 1 V3 on a piece of black plastic. The background, a piece of black board, is rendered black as the light doesn't reach it after illuminating the camera.



NIKON D750 ISO 800 1/160 SEC. F/32

**Figure 14.5** Using the same setting as [Figure 14.4](#) , I moved the

light farther away. More light reached the background, which rendered the black as dark gray.

In addition, you can change how your background renders by moving it further away from the subject. If the light, camera, and subject are all in the same spot but the background is moved further away, less light will be able to reach it. This does three things:

- Allows for the background to be lit separately
- Creates a blurred background because of the shallow depth of field
- Creates a solid black background

## Product Photography Setup

You can use just about any flat surface for product photography, and I have photographed a great many images set up on a small side table or even on my dining room table. A simple approach when lighting products is to use a soft light. This can be done in a few different ways, but the easiest is to use an open-sided box made from white foam-core board that bounces the light all around to create a soft light. You can see my box in [Figure 14.6](#) . This method works great but doesn't offer much control over the light. Although I still use the open box on occasion, I have come up with a more advanced setup for taking product photos.



**Figure 14.6** This open box is great for bouncing the light around the object and creating soft lighting.

The setup I use most now consists of two plastic sawhorses that support a replaceable surface on which I can photograph the product. The replaceable surface means I can change the material used from foam core to plain plywood to reflective plastic or even

to a translucent material, which enables me to light items from below much easier than when using a regular table. For the background, I use two light stands, but instead of the traditional metal background holder, I use a piece of wood that has two 3/4-inch holes drilled through it so it fits over the light-stand posts. Because the wood is square, it allows me to easily clamp different backdrop papers or cloth in place using standard clamps or Justin clamps if I need a light-up top. I can also just use pushpins to attach different backdrop papers to the wood. [Figure 14.7](#) shows my setup with a white piece of paper as the backdrop.



**Figure 14.7** My product photography workspace features a replaceable plywood surface on the two sawhorses and a white piece of paper hanging from the adjustable background setup.

When photographing products, you will want to be able to place a light above the product work area so you can illuminate the product from above and angle the light to control how it falls on the background. You also need a way to position it there without the light stand being in the way, and for this I use either a boom or a century stand to hold the light out over the whole setup. Because I use small flashes and lightweight light-shaping tools, the century stand works great, allowing me to position the light exactly where I need it. I do make sure to put a sandbag over the legs of the stand to keep it from tipping or falling while I shoot. One of the advantages of using the Nikon CLS and Advanced Wireless Lighting is that once the flash is in place, you can change the flash mode and power without having to actually touch the unit. In [Figure 14.8](#) you can see the SB-910 mounted in the Rapid Box Strip softbox placed over the surface of the work table. You need to make sure that the flash is set to Remote mode and that the sensor on the flash can see the pre-flash from the Commander.





**Figure 14.8** The size and placement of your softbox depends on the size of the object being photographed. Here an SB-910 in a Rapid Box Strip is placed over the work area.

Whichever setup you prefer, make sure you can move around it freely so you can position lights and change the angle of both the lights and the product. I use the same light stands and light modifiers for products as I do for portraits, including the Rogue FlashBender line of modifiers, snoots, and grids, as well as the Westcott Rapid Box Octa and Strip lights.

Some of the most essential gear at a product shoot, however, is also the most low tech. Without a clothespin to prop up a sagging product or some glass cleaner to wipe away your fingerprints, your perfect lighting setup could go to waste. Here are a few accessories to have on hand that will make your product photography photos easier to light:

- **Clamps** : A variety of clamps enable you to attach background paper, hold flags in place, and generally allow you to place the lights and modifiers in perfect position. You can get these clamps at any decent home improvement store.
- **Clothespins** : Use these little clips to help prop up items and keep things from moving around during a shoot. Get a selection of clothespins in different sizes, as shown in [Figure 14.9](#) .



NIKON D4 ISO 800 1/30 SEC. F/5.6

**Figure 14.9** Clothespins come in a variety of sizes, and I like to have a few larger and a few smaller on hand to help place small items.

- **Wood blocks** : While at the hardware store picking up some clamps and clothespins, grab a few pieces of wood at the same time. You can use these to prop up the item being photographed or to position small reflectors or flags.
- **Glass cleaner** : A small bottle of glass cleaner and a soft rag are vital and can be used to get rid of pesky fingerprints that can show up as you position the item. (For more detail on cleaning the items you're going to shoot, see the section "[Prepping Your Items](#) .")
- **Cloth gloves** : These go along with the glass cleaner and rag. You need a way to move and reposition the item you are photographing without leaving marks, and a pair of cotton gloves works great.
- **HandiTAK** : This material is sticky and malleable, which allows you to mold it to support the item to be photographed. You can pick it up at many home improvement stores, including The Home Depot.
- **FIMO** : You can buy this modeling clay from most art supply stores and use it in the same way as the HandiTAK ( [Figure 14.10](#) ).



NIKON D4 ISO 800 1/30 SEC. F/5.6

**Figure 14.10** Some small pieces of modeling clay can go a long way in positioning objects and helping with placement of small light-shaping tools.

- **Gaffer tape** : I love gaffer tape and consider it the photographer's secret weapon. Gaffer tape is strong like duct tape, but it doesn't leave behind any sticky residue. This makes it perfect for attaching things to surfaces where you want to leave no trace.
- **Artist tape** : You can use this tape to temporarily hold together papers and then remove it without damage. You can find it in an art supply stores.
- **Electrical tape** : Black electrical tape works really well for holding small items together. It doesn't reflect a lot of light, which makes it ideal for use behind items.
- **Compressed air** : Use a can of compressed air to blow off any last bits of dust from the surface of the subject.
- **Small mirrors** : Nothing allows you to bounce the light around quite like a small mirror. You can find them at any hobby store in a variety of sizes and shapes.
- **Washers** : A selection of washers enables you to fine-tune the placement of the object. Need to raise it just a little? Use a washer or two. I have a large selection in a variety of sizes for just about any size object.
- **Wire** : Some pieces of wire can make positioning items much easier. You can find packs of 24-gauge wire in

different colors at craft stores ( [Figure 14.11](#) ).



NIKON D4 ISO 800 1/30 SEC. F/5.6

**Figure 14.11** Flexible and strong, lengths of wire help with hanging items or supporting them “invisibly.” The different colors are useful in hiding the wire from the camera and the viewer.

- **Paper and poster board** : With paper and poster board you can create small flags and reflectors. I have a variety of different colored papers and boards to use as backdrops and light-shaping tools, and the best part is that they last for a long time and don’t cost much.
- **Cloth pieces** : Going to the fabric store and picking up a few pieces of fabric can help when you want to shoot an item on a softer-looking surface. A piece of black felt can be a life-saver when you want a solid black background.

Controlling where the light hits and where it doesn’t is a little easier with product photography than when photographing people. For products, especially those that are smaller, you can create small flags and reflectors using poster board and tape. Just take two pieces of board and tape one edge together. Then you can place them where you need to either block the light or bounce the light. In [Figure 14.12](#) , notice the hard line of light on the edge of the bottle. As you can see in [Figure 14.13](#) , I created this by firing an SB-910 but blocking most of the light using a couple of pieces of black poster board.



NIKON D750 ISO 200 1/320 SEC. F/8

**Figure 14.12** A good friend made some whiskey a few years ago. I still have a bottle, and while I might never drink it, it does make a great photo subject.



**Figure 14.13** A couple of pieces of black poster board and black gaffer tape create a way to block out unwanted light. The large softbox adds the fill light, while the SB-910 adds the hard edge of light on the right side.

## Prepping Your Items

No matter how spotlessly clean you think the object you are about photograph is, your image will prove otherwise. Every fingerprint, every smudge, and every dust speck will become visible when the light hits it just right. You need to clean the items before shooting, and once they are in place, use cotton gloves to avoid leaving any other smudges.

## General Cleaning

Cleaning the items you want to photograph is pretty easy and shouldn't take long. A little elbow grease and some cleaning supplies should get most items looking pretty good. The first step is to follow any cleaning directions on the item in question. Many products include cleaning and care directions in their user manuals. For everything else, some common sense and basic cleaning supplies can make your products look their best:

- **Glass** : Bottles, glasses, and anything else made of glass or porcelain needs to be spotless because the lights will pick up any fingerprints, dust, or dirt. You can use any of the commercial glass-cleaning products or just a combination of half water and half vinegar, but the real keys are the cloth used to wipe the glass clean and what you use to polish the glass after it's clean. A soft, lint-free cloth works well, but so does newspaper, which doesn't leave lint. The newspaper might leave ink on your hands, however, so either wear

gloves or make sure you wash up after cleaning.

- **Toys** : You can usually clean plush toys in the washing machine; check the care label and follow the directions. For soft plastic and rubber toys, use liquid dish soap and warm water and then use a half-and-half solution of rubbing alcohol and water to disinfect them ( [Figure 14.14](#) ). For hard plastic toys, such as Lego or Duplo blocks, put them in a delicates bag on the top rack of an otherwise empty dishwasher. Do not submerge any toys that have or take batteries; just wash the outside with some warm soapy water and air dry.



NIKON D750 ISO 200 1/200 SEC. F/8

**Figure 14.14** Dust and smudges can be easily removed from plastic toys with a clean cloth and some compressed air.

- **Books** : Your best bet is to wipe the book with a lint-free cloth and take care not to damage any areas that are already frayed or damaged.

## Jewelry

Jewelry needs to sparkle and shine to be attractive ( [Figure 14.15](#) ). Fortunately, it's not hard to get your jewelry looking great with just a few common household products:



- **Gold** : Mix two cups of warm water and a few drops of mild dishwashing liquid and then soak the jewelry for 15 minutes. Use a soft-bristle toothbrush to scrub off any stubborn dirt spots and then rinse the pieces in warm water and dry with a soft cloth.
- **Silver** : Rinse silver jewelry in warm water and dry with a clean cloth. If the silver is really tarnished, use a commercial silver-cleaning product, such as Goddard's, and follow the directions. You do not want to brush or scrub silver because that can scratch it. For most jewelry, a silver-polishing cloth is perfect to give it a quick shine.
- **Pearls** : You need to be careful when cleaning strands of pearls because soaking them can damage the string that holds them together and cause the whole strand to stretch. Create a solution of two cups of warm water and a few drops of mild dishwashing liquid; then dampen a clean cloth and wipe each pearl individually. Let the whole strand air dry on a clean (lotion-free) tissue. Pearls themselves are fragile as well, so if you have a pearl in a ring or pendant, be sure to avoid ammonia and harsh detergents.
- **Diamonds** : Mix 1 cup of warm water with 1/4 cup of ammonia and soak the diamonds for 20 minutes or so. Use a clean, soft-bristle toothbrush to clean all the small areas around the diamond and between the diamonds and the settings. Rinse the piece with warm water and leave it to dry on a tissue.
- **Turquoise**: This is the easiest of the lot; just use some clean, warm water and a soft brush and then rinse again and air dry.



NIKON D4 ISO 400 1/60 SEC. F/9.0

**Figure 14.15** Clean jewelry looks a lot better than dirty jewelry but is also a lot more reflective.

If the jewelry is extremely dirty, consider taking it to a jewelry store to be professionally cleaned. Many jewelry stores offer free

cleaning and inspection of your pieces, which might be a good idea because it can also help you determine their true value. Ask for a ballpark price to see whether it is worth getting a full appraisal, which could cost around \$100 per item.

## Cleaning Electronics

Photographing electronic devices can be difficult because they attract dust and fingerprints that seem to show up without anyone even touching the device. You need to make sure that the device and, most importantly, the screen are clean—really clean—to give the device that new, out-of-the-box look.

Here are some general rules for cleaning your electronic gear:

- Make sure the item is unplugged from any power outlets.
- Use only cleaners made specifically to clean electronic devices.
- Spray any cleaner onto the cloth and then wipe off the device.
- Use a lint-free, soft cloth to wipe the screen and body of the device.
- Do not use paper towels to clean the device. They are actually abrasive and can scratch the device.
- Do not spray any cleaners directly onto the device. Spray can easily seep into ports, vents, or openings and damage the device.

I have always been partial to the iKlear line for cleaning my Apple products and other electronic devices ( [Figure 14.16](#) ). For a reasonable price, you can get an iKlear cleaning kit that includes the lint-free cloth and the cleaning solution specifically designed for different electronic devices.



NIKON D4 ISO 100 1/250 SEC. F/7.1

**Figure 14.16** I am always amazed at how quickly my iPhone screen gets dirty. A quick rub with a lint-free cloth takes care of most of the smudges, and a little iKlear gets rid of the tougher dirt.

Using a can of compressed air can help get rid of dirt and dust ( [Figure 14.17](#) ). Just be careful not to spray it inside the device and hold the can upright so air—not propellant—sprays out.



NIKON D4 ISO 200 1/250 SEC. F/16

**Figure 14.17** Some items need a combination of cleaning techniques. For a photo of a camera, for example, you need to clean the plastic, rubber, metal, and glass. In this case, I used

compressed air and a lint-free cloth to clean off the rubber and plastic and some lens cleaner to clean the glass.

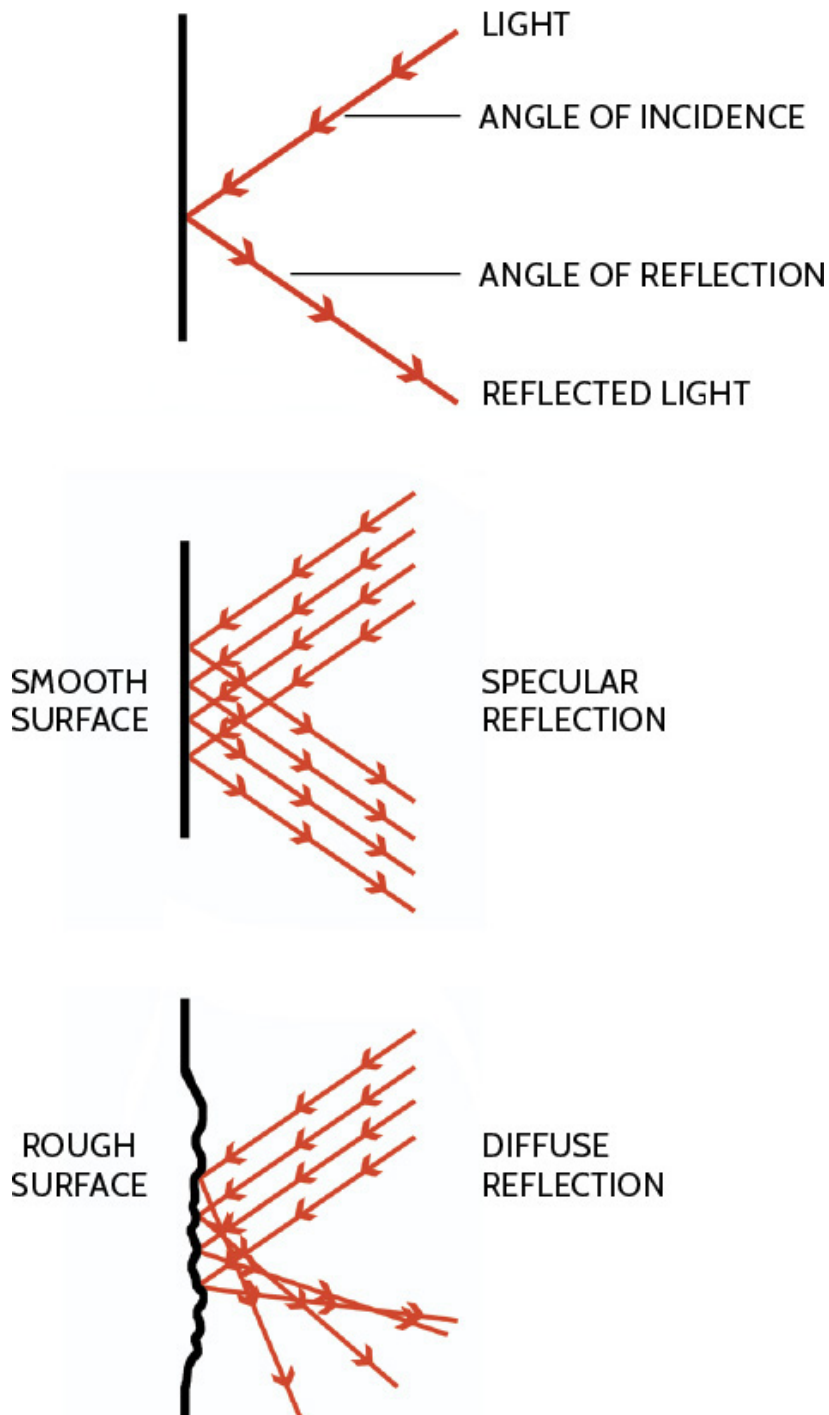
As I mentioned previously, a pair of cotton gloves is a great investment when you're photographing electronics. They allow you to pick up and position small items and electronics without leaving smudges and fingerprints. You can buy a pair of cotton gloves for less than \$6 at your local pharmacy. Or, I like Dot Line's eight-pack of white-cotton disposable gloves, which you can get from Amazon for less than \$10. These are the same type of gloves I used back in the film days when handling negatives and slides.

## Reflections

Light reflects off different surfaces in different ways. When you're trying to light a product, remember that the light that reflects off of the object is what the camera actually records. The good thing is that light bounces in a predictable way so you can control the where it goes and how it looks. Once you know your angles and reflections, you can better understand the way light bounces (

**Figure 14.18** ):

- **Angle of incidence** : This is the angle at which the light *hits* the surface.
- **Angle of reflection** : This is the angle at which the light *leaves* the surface.
- **Specular reflection** : When the angle of incidence and angle of reflection are the same, the resulting reflection is a specular reflection. This happens when you reflect the light off of a smooth shiny surface, such as a mirror, glass, smooth metal, flat water, or even smooth plastic.
- **Diffuse reflection** : When the light hits an object and that light reflects off in multiple directions because the surface isn't smooth, that is a diffuse reflection. In these cases, the angle of incidence and the angle of reflection are not the same.



**Figure 14.18** Light bounces off surfaces that it strikes. The texture of the surface affects how that light behaves.

## Different Surfaces

Different surfaces create different reflections. Keep in mind that reflections are not inherently bad. They can help to define the shape of an object, for example, and because our brains know what reflects and what doesn't, they can help viewers understand what they are looking at. The shape of the reflection in the object is dictated by the shape of light source. For example, a large softbox that covers the whole item will have no edges in the reflection. But if you use a small, square, white card to add some fill light, it can end up in the image as a bright, reflected square in the image. Consider how various surfaces reflect (or don't):

- **Metal** : Metal reflects light in a specular manner, so you will want to use a big, soft light and carefully watch the placement of the lights and camera. If a small, hard light hits a metal surface, it will create a hard, small light as a reflection. Using a large bounced light or a diffuser between the light and object can really soften the reflection. A small, hard reflection isn't inherently bad but can distract from the product.
- **Glass** : Glass can be tricky to photograph because light passes through it and bounces off it at the same time, making it both reflective and transparent. Glass also comes in a variety of colors that can affect the color of the light that is reflected off it and the color of the light as it passes through the glass. In addition, glass reflects anything else in the environment, creating odd shadows and reflections that show up in the image ( [Figure 14.19](#) ). One thing you can do to minimize the reflections is to use pieces of white board to block out the unwanted shadows.



NIKON D750 ISO 100 1/250 SEC. F/11

**Figure 14.19** A glass vase is a tough item to light because it is both reflective and translucent. One Speedlight is aimed at the background making it pure white, while the other is in a softbox overhead. Notice that items in the room where the photo was taken are causing odd reflections in the sides of the vase.

- **Plastic** : How reflective plastic is depends on its finish and the texture. Plastic can be highly reflective, if it is shiny, all the way to only slightly reflective, if it has matte finish ( [Figure 14.20](#) ). The reflection will also depend on how textured the surface is. A smooth surface is more reflective than a heavily textured surface.





NIKON D750 ISO 100 1/250 SEC. F/11

**Figure 14.20** This is not a Nikkor lens, but instead it is a plastic coffee mug. You can see how the light is only slightly reflecting off the textured surface.

- **Cloth** : Cloth is not reflective at all unless it contains metal thread or some other reflective element. There are some materials that have a sheen that can reflect light, like satin, and others that suck up light, like black felt.

- **Paper** : Paper can be reflective or nonreflective, depending on the texture and the color (more on colors shortly). Some papers, like the high-gloss photo papers, reflect a lot of light, while matte papers tend to reflect only a little light. The more texture a paper has, the less light it will reflect.

The best way to deal with the different surfaces is to adjust the angle of the lights. If you see the light bouncing off the object, try moving the camera, the object, or the light just a little. Remember that when working in close quarters, a little movement goes a long way.

## Different Colors

The surface color of items can cause them to be more reflective or less reflective. White, silver, gold, and any of the metallic surfaces tend to be more reflective than black, red, blue, and green, for example.

Colors other than black and white tend to reflect some of the light, but more importantly, they will change the color of the reflected light. This is neither positive or negative, but just a fact that you have deal with and decide whether the color cast adds or subtracts from the final image.

The color of the surface that you place your products on is important, as well. White will reflect light, so a white surface essentially adds a second light source (a large bounced light) below and around the product. Using black paper creates a more matte finish from which the light does not bounce back up. At times, I will take it a step further and use a paper with a rich black suede texture (which you can find at any craft store). Because this paper has a rough, textured surface, the light does not bounce back, and when combined with the black color, you get almost no reflection at all. The same little figure photographed on the black suede paper and the red suede paper is shown in [Figure 14.21](#) . You can see how the light doesn't reflect back up from these textured surfaces.

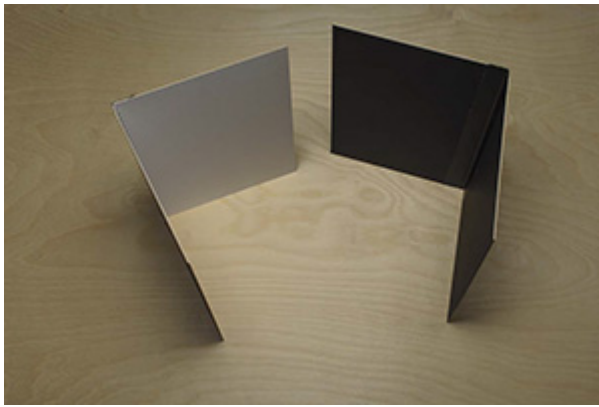


NIKON D750 ISO 100 1/250 SEC. F/6.3

**Figure 14.21** I photographed the same little statue on black and red suede paper. This paper has a rough texture that light just doesn't reflect off of, making it great for product photography.

## Flagging the Light

Any item that goes between the light and the object being photographed is called a *gobo*, and if that item blocks all the light, it is usually called a *flag*. As I have mentioned before, I use pieces of black poster board or black foam board as flags when shooting products because black absorbs the light. These flags can block any ambient light from entering the scene and help control the spill of the light being used to illuminate the object. This is especially important when photographing glass or metal, both of which reflect everything including the surroundings. I use white poster board or white foam board to act as small bounce cards because white will reflect the light. Because I like to be frugal, I have started making flags and bounce cards out of material that is white on one side and black on the other so that the same item can be used in two different ways ( [Figure 14.22](#) ).



**Figure 14.22** I made a bounce card and flag combination using board that is black on one side and white on the other and a strip of black gaffer tape.

These small pieces of card can make a big difference when lighting your products. [Figures 14.23](#) through [14.26](#) all show the same items, first photographed without a bounce card or flag and then with the modifier in place.



WITHOUT BOUNCE



WITH BOUNCE

NIKON D750 ISO 200 1/250 SEC. F/6.3

**Figure 14.23** The white bounce cards add some shape to the saké bottle.



**Figure 14.24** This behind-the-scenes shot shows the bounce cards in place for [Figure 14.23](#) .



WITHOUT FLAGS

WITH FLAGS

NIKON D750 ISO 200 1/250 SEC. F/6.3

**Figure 14.25** A glass can be tricky to photograph because the light goes right through it. Using a flag on either side allows the glass to reflect the black boards in the side of the glass and give it a clear shape.



**Figure 14.26** This behind-the-scenes shot shows the flags in place for [Figure 14.25](#) .

## Working in Close

Lots of times product photography means working with smaller items. The smaller the item, however, the more precise you have to be with the light and camera placement. The smallest change in the light can produce really big changes in the image.

## Choosing the Right Lens

All lenses have a minimum focusing distance that dictates how close you can use them to the subject you are photographing. For example, the 70–200mm f/2.8 has a minimum focusing distance of 4.6 feet, which means you have to be at least 4.6 feet away from the subject for the lens to focus. When you need to get in really close, using a lens that has a small minimum focusing distance is important. Lenses that are used for macro work are perfect for this. For example, the 105mm f/2.8 Micro-Nikkor lens has a minimum focusing distance of 1 foot. That allows you to fill the frame with even the smallest subject. For example, the photo of the coin in [Figure 14.27](#) is the full frame right out of the camera, with no cropping at all. The image was lit with a single SB-800 in a softbox over the coin and triggered by an SU-800 on the camera.



NIKON D750 ISO 100 1/160 SEC. F/11

**Figure 14.27** A 105mm Micro-Nikkor lens allowed me to fill the frame with the coin, capturing all the minute details.

A macro lens makes it possible to capture all the details while photographing items like jewelry. For the photo of the diamond in [Figure 14.28](#), I used a macro lens and a single softbox with an SB-910 placed directly overhead set to group A and triggered using the SU-800 on the camera. I used the Manual setting for group A and set the power to 1/8 power. The placement of the light allowed me to move the camera until I got the reflection just right on the surface of the gem.





NIKON D750 ISO 320 1/250 SEC. F/18

**Figure 14.28** A 105mm macro lens enabled me to get in close to this diamond.

## Controlling the Depth of Field

When you photograph using a macro lens close to your subject, you have to pay close attention to the depth of field. The depth of field is affected by the distance between the front of the lens and the object being photographed. What this means in practical terms is that you need to use a smaller aperture, which creates a deeper depth of field but allows less light to reach the sensor. This means either that you have to increase the power of the flash, add another flash, increase the ISO, or slow the shutter speed.

To illustrate this, I placed some simple crayons on a black piece of plastic with a single softbox over and slightly in front of the crayons. Three of the crayons are just 1 inch ahead of the other two. In [Figure 14.29](#) I used an aperture of f/5.0, and as you can see, the two crayons just an inch behind the others are blurred and out of focus. I was able to use 1/32 power on the single flash in the softbox.



NIKON D4 ISO 320 1/250 SEC. F/5.0

**Figure 14.29** I created this shallow depth of field by using an aperture of  $f/5.0$  and positioning the subject extremely close to the front of the lens.

To get all the crayons in focus, I used an aperture of  $f/32$  to create a deep depth of field. Because of this small aperture, I needed to drastically increase the amount of light. In this case, I used full power of  $1/1$  to get enough light to create the proper exposure shown in [Figure 14.30](#) .



NIKON D4 ISO 320 1/250 SEC. F/32

**Figure 14.30** Photographing these five crayons with a deep depth of field so that they are all in focus needs a lot of light. I used an aperture of  $f/32$  and full 1/1 power on the flash.

### Close-Up Kit

The Nikon Close-Up Kit allows you to place the SB-R200 units right at the end of the lens. You can use this in conjunction with other Speedlights to add a little extra light right where you want it and still keep the basic overall lighting the same. The kit works by attaching the Speedlights to a ring that mounts on the front of the lens and lets them move along with the lens as you adjust the composition.

The SB-R200 units can also be used as small accent lights off of the mounting ring. This combination of small size and ability to be used right near the end of the flash make them perfect for photographing products. For [Figure 14.31](#), I used the SB-R200

units mounted on the front of the lens to add some fill light to the small statue. This shot was taken using the AWL features of the CLS. The main light was a single SB-900 in a softbox placed over the work surface and set to group A. I created the green background by placing an SB-700 with a Rogue Grid and green gel behind and below the work surface and setting it to group B. Finally, I mounted two SB-R200 units on the front of my 105mm lens and set them to group C. An SU-800 triggered all the lights with group A set to Manual 1/32 power, group B set to Manual 1/16 power, and group C set to Manual 1/64 power.



NIKON D4 ISO 200 1/250 SEC. F/13

**Figure 14.31** This is one of the small statues that I have in my office. To light the image, I used a single softbox overhead and a couple of SB-R200 units right on the end of the lens. The background was lit separately with an SB-700.

Using just one of the SB-R200 units attached to the front of the lens allowed me to light only one side of the pendulum in [Figure](#)

**14.32** (*on the previous page* ). To make the light softer, I used a small white card to bounce the light. Because the SB-R200 can be used only as a remote, I used an SB-910 as a Commander to trigger it.



NIKON D750 ISO 200 1/250 SEC. F/18

**Figure 14.32** I photographed this small wood pendulum using a single SB-R200 off to camera right.

## Product Lighting Strategies

Lighting for product photography can be a lot of fun—no models to worry about and the only time you need to rush is when food or drink is about to spoil. I have spent quite a few pages talking about the issues that you can have when photographing products; now it is time to discuss some strategies in making the products look their best. We'll start with just one light and then move on to some more complicated setups involving two or more lights.

## One Speedlight

You don't need more than one light to take some great product photos, but you do need to get that Speedlight off the camera. The best solution to using one light for product photography is to get that light into a softbox and positioned above the product. I am a fan of the Westcott Rapid Box line of diffusers for portrait photography, and they work just as well for product photography. The general idea is to use a big, soft light, and just about everything will look good. Just because you have only one Speedlight doesn't mean you have only one light source. You can add some bounce cards or reflectors and make that light do double or triple duty. Use a couple of pieces of black poster board to flag the light, and you can create some pretty stunning photos.

All the items in [Figure 14.33](#) were shot under the same light. It was one softbox positioned above and in front of the product using a century stand. You don't even have to use the wireless capability of the CLS; I fired the flash using a TTL cord.



NIKON D750 ISO 200 1/200 SEC. F/6.3

**Figure 14.33** A single softbox and a piece of white paper are all you need to create a great product photo. Each of these items was shot in the same setup with slight adjustments to the angle of the light.

For [Figure 14.33](#) 's series of shots, I clamped a plain piece of white paper to the wood beam in the back to act as a seamless



background ( [Figure 14.34](#) ); then I placed a single SB-910 in a softbox and positioned it above and in front of the product ( [Figure 14.35](#) ). I locked the camera down in a tripod and ran the TTL cord from the camera to the flash ( [Figure 14.36](#) ).



**Figure 14.34** A plain piece of white paper attached with clamps to the wood bar behind the work space serves as a backdrop.



**Figure 14.35** A TTL allowed me to fire the flash (an SB-910 in a Westcott Rapid Box) without using the AWL functions of the CLS.



**Figure 14.36** The product sits on the white paper, and the camera is connected to the flash using the TTL cord.

Alternately, you could use this setup with AWL, a Commander, and a remote, but if you have only one Speedlight, then this is the way to go. Set the Speedlight to Manual flash mode, the power to 1/8, and the camera to Manual mode, and then use these settings as a starting point: 1/200 second, f/6.3, and ISO 200. All that's left is to adjust the placement of the object and light and then fine-tune the position of the camera to create the best composition. For example, in [Figure 14.37](#) I positioned a single pepper on the background, with the help of some tape and wire to hold it in place.



NIKON D750 ISO 200 1/320 SEC. F/8

**Figure 14.37** A difficult part of this simple image of a pepper is getting the pepper to stand up. As you can see from the insert, a little wire and white tape were useful.

You can easily change to look of the items and the whole tone and feel of the image just by changing the color of the paper background. For [Figure 14.38](#) , I changed the background from white to black and adjusted the height and angle of the camera.



NIKON D750 ISO 200 1/320 SEC. F/8

**Figure 14.38** The drill and gloves photographed against a black background using the same settings as when shooting against the white background.

At this point, I am just using a single SB-910 in a softbox, but that doesn't mean I can't add more light sources without adding any more actual lights. A couple of pieces of white poster board can act as small fill lights. Using the same settings as used in [Figure 14.38](#) , I placed a piece of white board over on the right side of the drill to add some light to the back of the drill. You can see the results in [Figure 14.39](#) and the board in [Figure 14.40](#) .



NIKON D750 ISO 200 1/320 SEC. F/8

**Figure 14.39** Adding a little fill light can help with some subtle additions to the lighting. I wanted the shadows to be opened up a little on the back end of the drill to give it more shape.



**Figure 14.40** You can see the white board that is being used to add some light to the back of the drill—nothing fancy, just some white poster board.

## Two Speedlights

With two Speedlights at your disposal, you can light your product and background independently, which opens up a lot of creative options. One of the main reasons that I use the table with the background stand option is the ability to place a light between the product and the background. I can then use this light to light the background or backlight the product. In [Figure 14.41](#), the bottle is still lit by the single SB-910 in the softbox, but I added a second SB-910 in a small light stand placed between the bottle and the background with a Rogue Grid and red gel. The flashes are fired using an SU-800 with the single SB-910 in the softbox set to channel 1 and group A and the Speedlight in the rear set to channel 1 and group B. Both flashes were set to Manual power with group A at 1/16 power and group B at 1/32 power. You can see the placement of the group B flash in [Figure 14.42](#).



NIKON D750 ISO 200 1/320 SEC. F/8

**Figure 14.41** The bottle is lit with the single softbox, while the background is lit with a second flash using a grid and red gel to keep the light tight.





**Figure 14.42** Here you can see the second Speedlight right behind and below the bottle.

The second light allows you to separate the product from the background in much the same way as you can when photographing people. The big difference with products is that you usually have a lot less space to work with. Small adjustments when lighting a small product can have big changes in the way the light interacts with the subject. When you set up a light to illuminate the background, try moving it forward and back in small increments until it looks the way you want.

A second Speedlight is also useful when photographing a bottle with liquid in it, such as a bottle of beer. You can blast the light through the bottle right at the camera, creating a glow as the light bounces around while traveling through the liquid ( [Figure 14.43](#) ). The two flashes were fired using an SU-800 with the single SB-910 in the softbox set to channel 1, group A and the SB-700 Speedlight in the rear set to channel 1, group B. Both flashes were set to Manual power with group A at 1/16 power and group B at

1/64 power.



NIKON D750 ISO 200 1/320 SEC. F/8

**Figure 14.43** The bottle was lit by a two speed lights, one in the softbox in front and one aimed through the bottle back at the camera.

## Multiple Speedlights

With multiple flashes you can add more controllable accent lights to your image. For example, you can start with the same basic setup with a softbox up front as the main light and a single gelled Speedlight for the background and then add another light or two for some accent light.

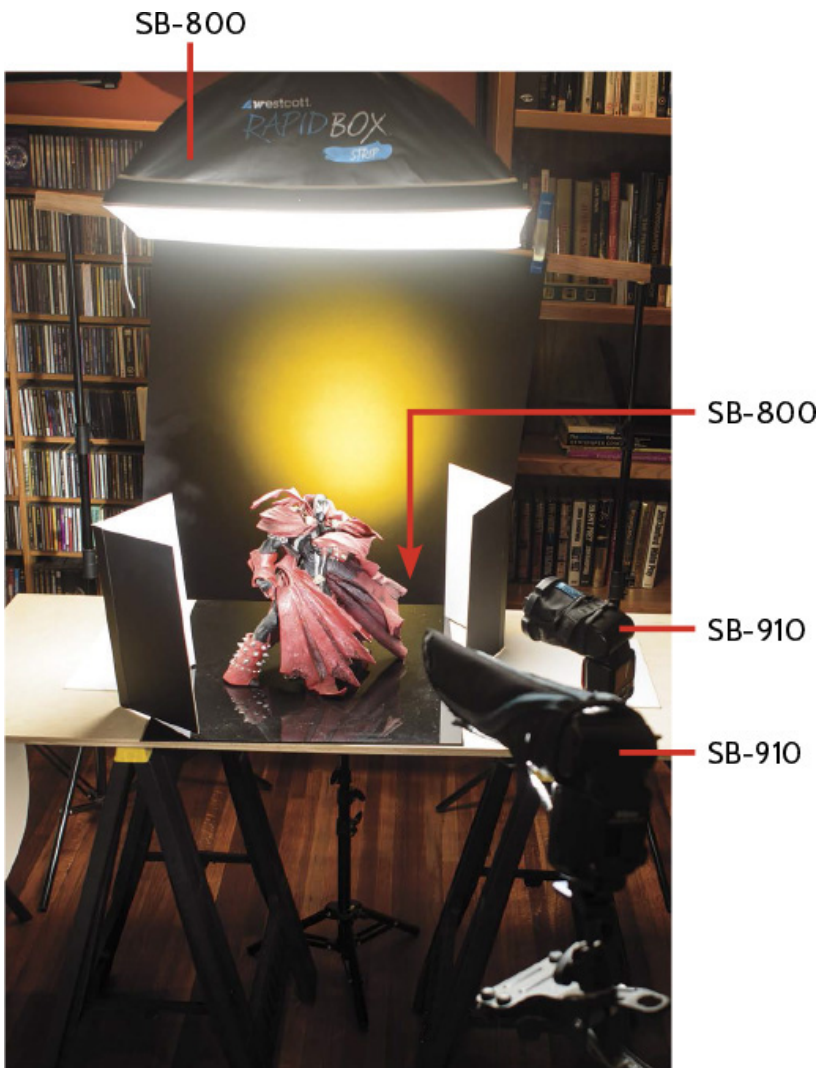
The basic setup is to have the main light as group A, the accent lights as group B, and the background light as group C. I have all three set to Manual power and am using an on-camera SU-800 as the Commander unit. For example, [Figures 14.44](#) and [14.45](#) use

four Speedlights and two reflectors.



NIKON D750 ISO 200 1/250 SEC. F/16

**Figure 14.44** The figure is lit by four Speedlights: The main light is overhead placed slightly behind the subject, the background is gelled yellow, and two accent lights add some light to the details in the front. One of the accent lights has a snoot to keep the light tight on the front, and a second light with a grid is aimed at the face.



**Figure 14.45** The main light is an SB-800 in the Rapid Box Strip with another SB-800 as the background light and two SB-910s as the accent lights.

Using multiple lights allows you to light multiple items at the same time. This can be a little more tricky because the illumination used on one item can spill over and affect the illumination on another item. Using flags can help, but I have found that grids and snoots can better keep the light under control. For [Figure 14.46](#), the two exotic mushrooms were placed next to each other but were lit by separate lights. I positioned a single overhead light in a softbox above the setup (group A) and placed a single Speedlight with a green gel in the back (group C). Positioned on each side, the two

additional Speedlights (group B), one for each of the mushrooms, had small Rogue FlashBenders as snoots keeping their light tight on their respective mushrooms. As you can see from the shadows, the light from the left doesn't reach the mushroom on the right, and the light on the right doesn't reach the mushroom on the left.

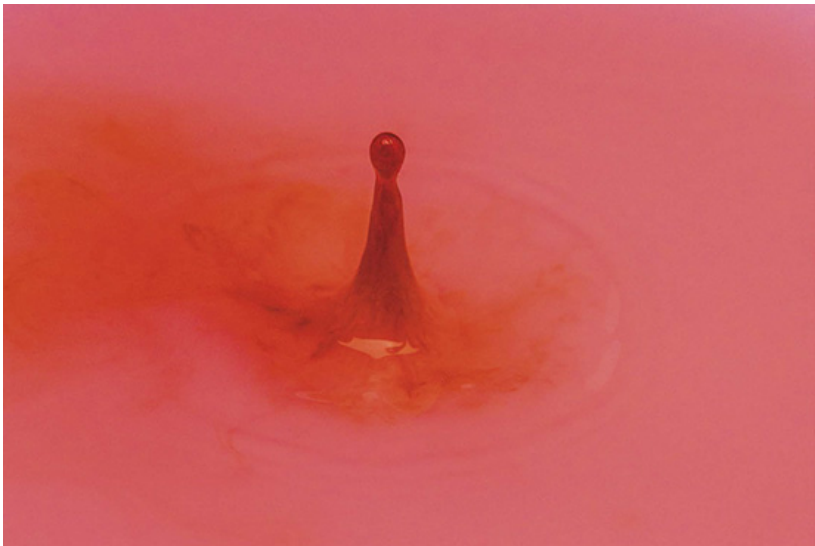


NIKON D750 ISO 200 1/250 SEC. F/22

**Figure 14.46** These two exotic mushrooms are lit using four Speedlights: one for the overhead light, one for the background, and one for the details on each of the mushrooms. I used small snoot to keep the sidelights tight and on target.

## Drops, Splashes, and Pours

Working with water and other liquids in product photography can create stunning images, and although it can make a huge mess, it's a lot of fun. The basic idea is to freeze the splash of water as it happens. This could be water being poured into a glass, an ice cube splashing into a drink, or as simple as a drop of water frozen at the moment it lands in a pool of water mixed with milk ( [Figure 14.47](#) ).



NIKON D750 ISO 800 1/2000 SEC. F/7.1

**Figure 14.47** The drop of water is frozen in the second that it lands. Using an eyedropper and some red food coloring made for a more interesting shot.

There are two ways to freeze the action. The first is to use the short burst of light produced by the flash, and the second is to use a faster—really fast—shutter speed. It is much easier to use a fast shutter speed to freeze the action, and with Nikon's CLS you can sync the flash at fast shutter speeds, up to 1/8000 of a second. Not all the cameras in the Nikon system have the High-Speed Sync feature, and many of the cameras go to only 1/4000 of second as the fastest shutter speed. If you cannot sync at a shutter speed higher than 1/200 second, you need to use the flash on a low-power setting. The flash power is based on the length of time of the flash burst: The longer the burst, the more light. If you want to freeze something, you need to use a shorter burst of light.

Pouring a liquid from one container into another is a great subject to photograph. For [Figure 14.48](#), I used a fast shutter speed to freeze the action of the liquid landing in the glass. This was shot with two Speedlights: The first light is the main light in a softbox over the action, and the second is to turn the background a solid white.



NIKON D4 ISO 1600 1/1250 SEC. F/9

**Figure 14.48** Water pouring into a wine glass is a simple idea and a lot of fun to photograph even with the mess it makes.

Instead of using a shutter speed of 1/1260 as for [Figure 14.48](#), I froze the action in [Figure 14.49](#) by using a lower flash power, which has a short duration. To do this, I needed to use a higher ISO and wide aperture. For this shot, I used a flash power of 1/32, an ISO of 1/6400, a shutter speed of 1/200, and an aperture of f/4.0 to get the exposure I wanted and for the water to look frozen. I prefer to use the higher shutter speed that the Nikon system allows with the High-Speed Sync, but not all the cameras support that function.





NIKON D750 ISO 6400 1/200 SEC. F/4.0

**Figure 14.49** The pour is frozen by the short burst of light instead of the high shutter speed.

If you look through magazines, you will see a lot of examples of splash photography in the advertisements for drinks. Nothing looks quite as refreshing as a couple of ice cubes landing in a fresh drink. This might look like it is really difficult to do, but actually it can be accomplished with a single Speedlight and some patience. For [Figure 14.50](#), I filled a glass with some water, colored slightly with yellow food dye, and then proceeded to drop an ice cube into

the drink from above and pressed the shutter release button as the ice cube hit the water. Again, using a fast shutter speed and the ability of Nikon's CLS to sync at high shutter speeds allowed me to freeze the splash. The lighting consisted of a single SB-800 in a softbox overhead and an SB-800 behind and below the glass with a blue gel to light up the background. The light was placed close to the background and angled upward to give the gradient effect to the light.



NIKON D4 ISO 800 1/2000 SEC. F/5

**Figure 14.50** As the ice cubes splashed down into the glass of liquid, the 1/2000 shutter speed froze the splash.

## Final Thoughts

The lighting for photographing objects isn't that much different than for photographing people. It is actually beneficial for portrait photography to learn how to light inanimate objects because you can take your time and adjust the lights without the subject getting tired or impatient. You also don't have to worry about messing up, and you can keep working on it until it is just right.

Experimenting with product photos can expand your

understanding of light and how it interacts with a subject. If you are stuck in a rut, experiment with some product photography. Plenty of great subjects are probably waiting in your own home.

# V: Speedlights in Action



NIKON D750 1/180 SEC. F/5.6 ISO 320

This section puts everything together in a series of examples starting with one flash and working up to multiple flashes. [Chapters 15](#) , [16](#) , and [17](#) deal with the same subjects, first lit with a single Speedlight attached to the camera, then with a single off-camera flash, and finally with multiple flashes. The different subjects and settings dictate the methods used and the effect the lighting needs to have. The general idea is to show you what can be done with a single Speedlight and what can be done with multiple Speedlights. The section wraps up by discussing how to use Speedlights for action photography ([Chapter 18](#) ) and product photography ([Chapter 19](#) ).

[CHAPTER 15 Portrait Shoots with One Flash](#)

[CHAPTER 16 Portrait Shoots with One Off-Camera Flash](#)

[CHAPTER 17 Portrait Shoots with Multiple Off-Camera Flashes](#)

[CHAPTER 18 Speedlights Used for Action](#)



## 15. Portrait Shoots with One Flash



Photographs taken with an on-camera Speedlight look better than those taken using the pop-up flash, but the direction of the light can still turn your portraits into mere passport pictures if you're not careful. This chapter shows you how to get the best shot possible with a single flash still attached to your camera. For example, using small light modifiers, such as the Rogue FlashBenders or Rogue Grid, can help you change the quality of the light produced by the flash. Likewise, a reflector or plain sheet of white poster board can bounce light where you need it most, creating a softer light.

### Dancer

I always try to match the light with my subject. For this shoot, my subject was Jennifer, a ballerina in a tutu with soft tulle, so I needed to keep the light as soft as possible to be the most flattering. My idea was to start simple and soft with a single flash, then add a light or two, and end with an action dance pose. For this early photograph of Jennifer posing in a chair, I needed a solution that would work with the single flash attached to the camera. An umbrella or a larger softbox wasn't an option.

I decided to bounce the light from the ceiling to fill the whole scene. Because the ceilings were rather high, however, I needed to increase the flash output and push some of the light right at the

subject. The Rogue FlashBender proved to be just the tool for the job, as you'll see.

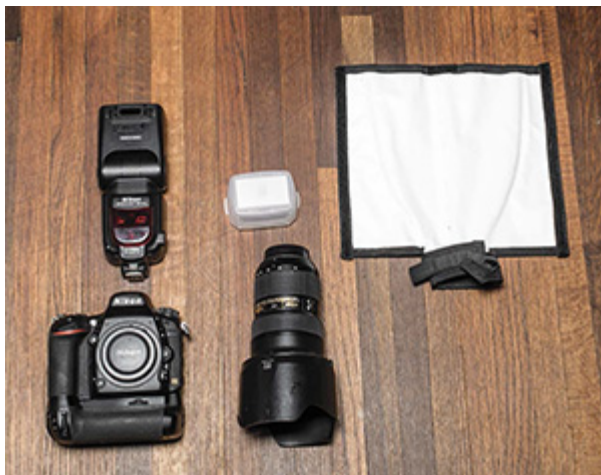
## Equipment

The equipment for this shoot was the bare basics: one camera, one lens, and one Speedlight with a diffusion dome and a simple light modifier, in this case, the Rogue FlashBender ( [Figure 15.1](#) ).

Specifically, I used the following:

- **Nikon D750 DSLR** : You can use any camera for this type of shot.
- **24–70mm f/2.8 Nikkor lens** : The distance between the subject and the camera dictated which lens I could use. Because the Speedlight was mounted on the camera, I needed to be relatively close or the light wouldn't reach the subject. The 24–70mm focal lengths allowed me to work close to the subject.
- **Nikon SB-910 Speedlight** : The SB-910 gave me enough to power to really light up the whole room. I suggest using the SB-910, SB-900, SB-800, or SB-700. These will give you enough power to light up the space and the subject.
- **Nikon SB-910 Diffusion Dome SW-13H** : The light from the Speedlight needs to be diffused, and the diffusion dome that ships with the Speedlight does a great job of this. If you don't have the original dome, you can purchase one of the Sto-Fen diffusion domes ([www.stofen.com](http://www.stofen.com) ) for your flash.
- **Rogue FlashBender** : I needed a way to create a bigger light from the small flash, and the large Rogue FlashBender did the job. It pushed some of the light forward and allowed the rest to hit and bounce off the ceiling.
- **Background Stand Kit** : Creating a studio on location requires a way to hang the backdrop, and these kits are made for that exact purpose. For example, the Westcott Background Support System kit consists of two heavy-duty light stands and four metal rods. The rods combine to make a heavy-duty cross beam that the backdrops hangs on.
- **Cloth Background** : For this set of photos, I used a gray, mottled cloth backdrop. You can get just about any color or pattern imaginable.





**Figure 15.1** My camera gear for the shoot was the Nikon D750 with the battery grip installed, a 24–70mm f/2.8 Nikkor lens, and the Nikon SB-910 Speedlight with a diffusion dome and the Rogue FlashBender.

I kept the head of the SB-910 aimed straight up because of the weight of the FlashBender. If the flash head was angled at all, the weight of the FlashBender caused it to fall back down to aim directly at the subject. I use this same basic setup when photographing red-carpet events. Although I want the small hard light of the flash to be larger and softer at these events, I don't have a lot of space to work or the luxury of moving the flash off-camera. The results are good, as you can see in [Figure 15.2](#), which was taken at the 2014 San Diego Comic Con International press event.



NIKON D4 ISO 800 1/60 SEC. F/5.6 SB-900

**Figure 15.2** Shooting the press event for the *Wayward Pines* television show, I used a Nikon D4 with the SB-900 and the small Rogue FlashBender to soften the light.

## Setup

The setup for this shot was simple. Jennifer sat in a chair in front of a backdrop ( [Figure 15.3](#) ), and the only light came from the flash mounted on the camera. The idea was to make that light as big as possible by bouncing it off the ceiling, while still directing some of the light at the subject with a diffusion dome and a Rogue FlashBender.



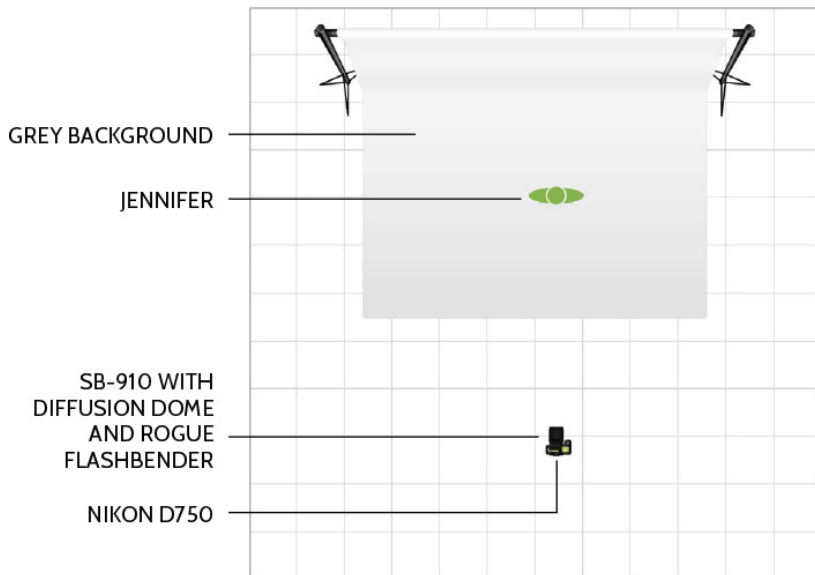
NIKON D750 ISO 3200 1/80 SEC. F/2.8

**Figure 15.3** The setup was simple: the dancer sitting in a chair in front of the backdrop.

Because I wanted to photograph Jennifer in a portrait orientation as well, I had to adjust the angle of the flash head and the position of the FlashBender. I turned the camera to a vertical orientation and adjusted the flash head so that it was aimed vertically, and then I adjusted the FlashBender, as shown in [Figure 15.4](#) . For the complete lighting diagram, see [Figure 15.5](#) .



**Figure 15.4** Here you can see the landscape and portrait setups with the flash on the camera and the Rogue FlashBender attached.



**Figure 15.5** The lighting diagram shows the simple setup for this image. The flash was aimed directly up at the ceiling with the FlashBender attached and slightly angled so the light produced from the flash filled the whole room with soft light. A smaller FlashBender would have produced a harder light, and the larger FlashBender would have been unwieldy on the camera.

## Final Images

With Jennifer posing in the chair, I aimed the flash straight up and slightly angled the FlashBender. One of the great advantages of the FlashBender is the ability to bend the bounce surface to more accurately aim the light. For this shot, the FlashBender bounced some of the light at Jennifer, while the rest hit the ceiling and scattered all around the room, creating a softer, more even light for the portrait. In Manual exposure mode with a shutter speed of 1/80 second, ISO 320, and f/2.8, I set the camera to Matrix Metering and the Speedlight to TTL mode. The camera would now tell the flash how much light it needed to put out to properly illuminate the scene. With a 1/80-second exposure, the small amount of ambient light was negated, and the f/2.8 setting helped me to blur the background as much as possible.

The first shot looked slightly underexposed as the camera saw the lighter background. I increased the flash output by 1 stop (+1) and tried again. This looked good on the back of the camera, so now the session was all about the right pose. I adjusted the camera

for portrait orientation shooting and took [Figure 15.6](#) . The slight shadow behind Jennifer on the backdrop is the result of the relatively small size of the flash created by the distance from the camera to the subject. Even the larger light source created by using the Rogue FlashBender couldn't make the light soft enough at the distance between the flash and the subject.



NIKON D750 ISO 320 1/80 SEC. F/2.8 SB-910 ON CAMERA

**Figure 15.6** The dancer in a chair: I photographed Jennifer

using one SB-910 Speedlight on the camera and a Rogue FlashBender to create a larger light source.

**Figure 15.7** was taken with the same settings as the previous shot, but I moved in closer to Jennifer, making the light a little softer as the relative size of the light source was larger. The combination of the light being diffused with diffusion dome, the light bouncing off the ceiling, and the FlashBender directing some of the light at Jennifer created a softer portrait with no hard shadows.



NIKON D750 ISO 320 1/80 SEC. F/2.8 SB-910 ON CAMERA

**Figure 15.7** Moving in closer made the light even softer than in **Figure 15.6** .

Notice **Figure 15.6** 's shadow has disappeared from the backdrop in **Figure 15.7** . The only difference is the distance of the light (and camera) to the subject. For the first shot, I was approximately 18 feet away from Jennifer, while for the second I moved in to about 12 feet. The different of 6 feet can make a huge difference in the quality of light.

## Dugout

Photographing athletes on location is a real challenge, especially when you don't have a lot of time and can't bring in a lot of gear. Although soft, diffused light works well for ballerina, it doesn't for baseball players. For this photo of Sam, I decided to make a more dramatic shot by keeping the light tight and focused. To accomplish this, I used a grid over the front of the flash, which focused the light and produced little spill. I also used a higher



shutter speed than for the ballerina to reduce the amount of ambient light.

## Equipment

For this simple portrait, the gear was quite basic ( [Figure 15.8](#) ): one camera and lens, plus one flash with a modifier. The one extra piece that helped with aiming the light was the TTL cord, which enabled me to move the flash off the camera.

- **Nikon D750 DSLR** : You can use any camera for this type of photo.
- **24–70mm f/2.8 Nikkor lens** : This lens gave me the focal length I needed to photograph the subject and not be so far away that the flash couldn't reach.
- **Nikon SB-910 Speedlight** : Any of the Speedlights will work in this situation. The SB-900 and SB-910 have slightly bigger flash heads, which work better with the Rogue Grids, but a little gaffer tape solves any looseness.
- **Rogue Grid** : This is a great small flash modifier when you want to create a tight beam of light. With the three different grid patterns, it is more versatile than a snoot.
- **Nikon SC-29 TTL cord** : I needed a way to have the flash think it was still on the camera but be more adjustable. The TTL cord was the solution to this problem.
- **Black gaffer tape** : The Rogue Grids are great, but they can come loose if the flash is moved around a lot. The gaffer tape works great to hold the grid in place.





**Figure 15.8** The gear for this shot was simple: camera, lens, flash, and Rogue Grid. The Rogue Grid is actually four separate pieces: a holder that attaches to the flash, a front piece that holds the grids in place, and two different grid inserts that can stack to create the narrow 16-degree spot.

The great part about the Rogue Grid design is that you can remove the grid holder while the mounting piece is still attached to the flash. This way you can easily add a gel or change the grid angle. The Rogue Grid comes with two honeycomb grids that you can stack inside the grid holder in different configurations. You can produce 16-, 25-, and 45-degree grid spots just by switching out the grids. I have found that occasionally the grid holder can come loose and fall off the flash, however, so I usually use a piece of gaffer tape to make sure that it is secured to the flash head, as you can see in [Figure 15.9](#) .

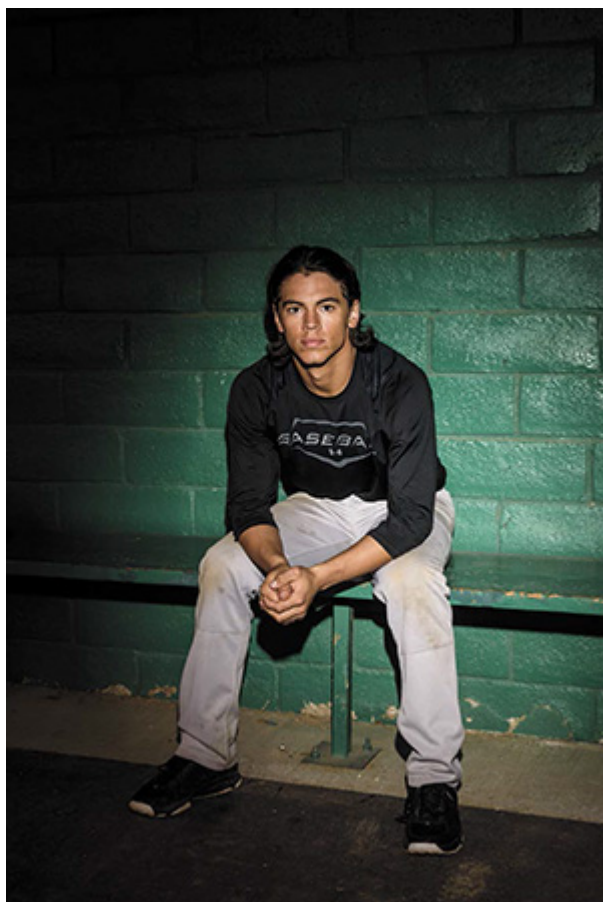


**Figure 15.9** To hold it securely, I used gaffer tape to attach the Rogue Grid holder to the SB-910 Speedlight mounted on top of the camera. I also used the gaffer tape to make sure that no light leaked out the bottom or around the sides of the grid.

With the Speedlight mounted on the camera, I needed to take the photos in landscape orientation to accomplish the look I envisioned. With the flash positioned on top of the camera, the light striking the subject comes from the top of the frame, which is what I wanted. If I turned the camera into portrait position, the light would have come from the side of the frame—the wrong direction. For that reason, I needed a way to change the flash position, which is where the TTL cord came into play.

I needed the ability to aim the flash a little more accurately, so I added the SC-29 TTL cord, which would allow me to hold the flash in my left hand for aiming. When the flash is mounted on the

camera with the grid, the grid tends to point slightly downward, which is not what I wanted as it would light up too much of the subject's legs ( [Figure 15.10](#) ). Using a TTL cord will help you aim your flash more accurately at the subject.



NIKON D750 ISO 400 1/200 SEC. F/6.3 SB-910 ON CAMERA

**Figure 15.10** Sam sat in the dugout during the test shots. The setting was a simple bench in the dugout with a green wall as the background. The flash on the camera is lighting up too much of the image, especially his legs.

## Setup

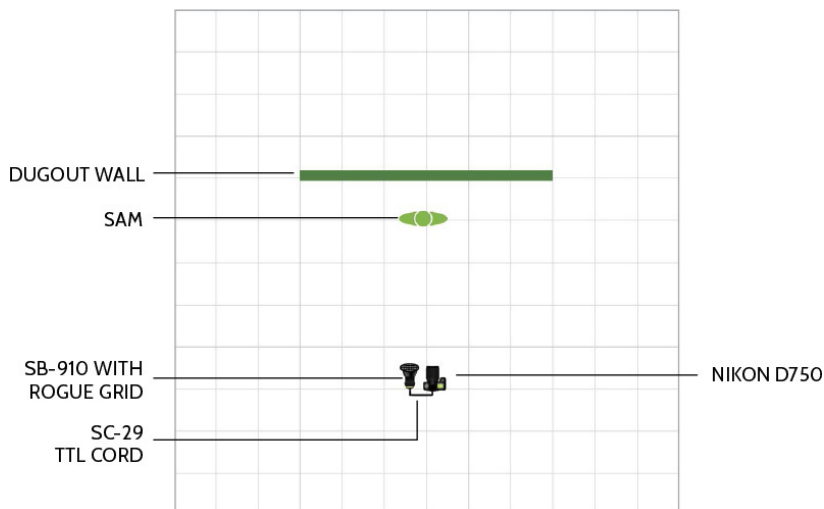
The setting for this photo was the dugout at a high-school baseball field. The green color of the walls and the rough textures made for an interesting and somewhat gritty look and feel. I wanted to accentuate this gritty feeling—another reason to use a harder, more focused light.

Because I could hold and aim the light but was limited by my arm length, I had Sam sit facing toward me ( [Figure 15.11](#) ). I wanted the light aimed at his face to be the main light in the scene and not have any of the ambient light affect the image. To do this, I used a fast shutter speed (1/200 second) to reduce the amount of ambient light and a deeper depth of field (f/6.3) as I wanted to make sure to capture some of the texture of the green wall. You can see the lighting diagram in [Figure 15.12](#) .



NIKON D750 ISO 420 1/200 SEC. F/6.3 SB-910 ON CAMERA

**Figure 15.11** Sam sat in the dugout during the test shots. The roof over the dugout caused the whole area to be in deep shadows.



**Figure 15.12** The lighting diagram shows the shot's simple setup. I was only about 12 feet from Sam and had him lean forward a little to provide some separation between the wall and his head.

The difficult part of creating this image was holding the flash at the right angle while taking the photo. I would love to tell you that it worked perfectly every time, but that would be a lie. As you can see from [Figure 15.13](#), the light wasn't quite on target for a few shots. It didn't take me (and won't take you) long to get the final shots, but getting the light just right needs an extra frame or two.

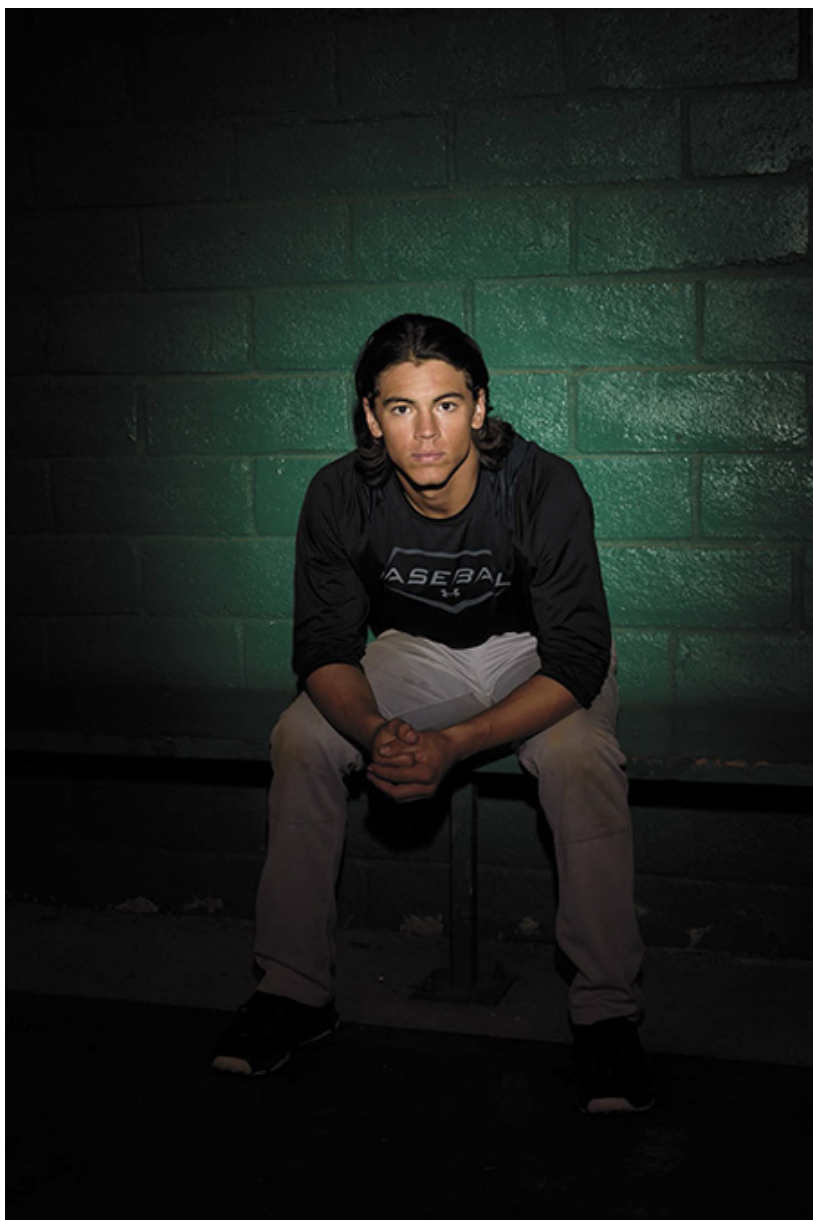


NIKON D750 ISO 420 1/200 SEC. F/6.3 SB-910 ON CAMERA

**Figure 15.13** In this outtake, you can see that the flash is aimed off to the right and not on the subject. It does take a couple of tries to get the light aimed where you want it.

## Final Images

In **Figure 15.14** the focus is on Sam with tight light created by using the two grids stacked. The spill of the light and the beam's tightness depend on the size of the grid you use: The smaller the degree, the tighter the beam of light is. The Rogue Grid uses a 25-degree grid and a 45-degree grid. When you put both in the holder, you get a 16-degree grid.



NIKON D750 ISO 400 1/200 SEC. F/4 SB-910 ON CAMERA

**Figure 15.14** Adding the 25-degree grid to the 45-degree grid

in the grid holder creates a 16-degree light, which is much tighter light that really worked for this image.

The photo was taken with the camera in Manual mode, set at 1/200 second, ISO 400, and f/6.3. The SB-910 was set to TTL mode, which worked great and gave the correct exposure on Sam's face. The flash was attached to the camera with a TTL cord allowing me to aim the flash. This worked well but does take some practice. It is important to stay in the same position between photos, while checking that you are aiming the flash correctly during the shots. With the grid attached to the Speedlight, there is not a lot wiggle room in where to aim the flash, because the beam of light is so tight and without much spill.

## Kids

Photographing multiple subjects with a single, on-camera Speedlight is pretty easy—if they are all grouped tightly together and facing the camera. When the subjects are spread out (as kids usually are), the challenge increases because the light is attached to the camera and can't be aimed at more than one subject at a time.

As a solution for my session with these kids, I used a combination of the ambient light already in the scene and some flash into a gold reflector, which bounced some of the light back into the image, and a TTL cord allowing me to control the direction of the light. My idea was to match the color of the light coming through the window by using the gold reflector to bounce and change the color of the light from the flash.

## Equipment

My equipment list will look familiar from the previous sections:

- **Nikon D4 DSLR** : Any of the Nikon DSLR cameras will work in this situation.
- **24–70mm f/2.8 Nikkor lens** : The working distance was really tight, and I needed the wide-angle focal lengths. I also needed to be pretty close to the reflector because the TTL cord does not have that much reach and the flash was just sitting on the floor in front of the reflector.
- **Nikon SB-910 Speedlight** : Any of the Speedlights can work in this situation.
- **TTL cord** : The TTL cord allows me to take the flash off the



camera, but the flash and the camera still think that they are connected.

- **Gold reflector** : The gold reflector enables me to bounce the light and change the color in a single step. The reflector is a great tool to soften the light.

The only new piece of equipment here is the gold reflector ( [Figure 15.15](#) ). Most reflectors come with multiple covers providing you with different colored surfaces to reflect the light. To get a warmer light, I like to use the gold or gold-mixed-with-white side, depending on how much gold I want in the image. Another way to add a warmer light is to use a colored gel over the flash. If you opt to use an orange gel, then you probably want to use a white reflector, or the light being bounced into the image might end up looking more like a radiation glow than a warm tone. Because I was shooting in the morning, the light coming from the window was warm and quite bright. The light from the flash and reflector was intended to add some fill and even out the overall light.



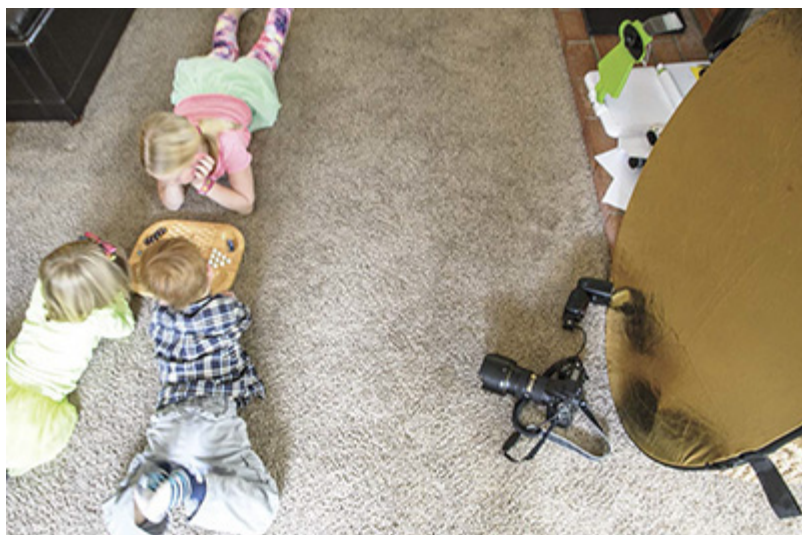
**Figure 15.15** The gear for this shoot was basic. I always have a reflector (or two) with me because you never know when you will need to bounce or block the light.

## Setup

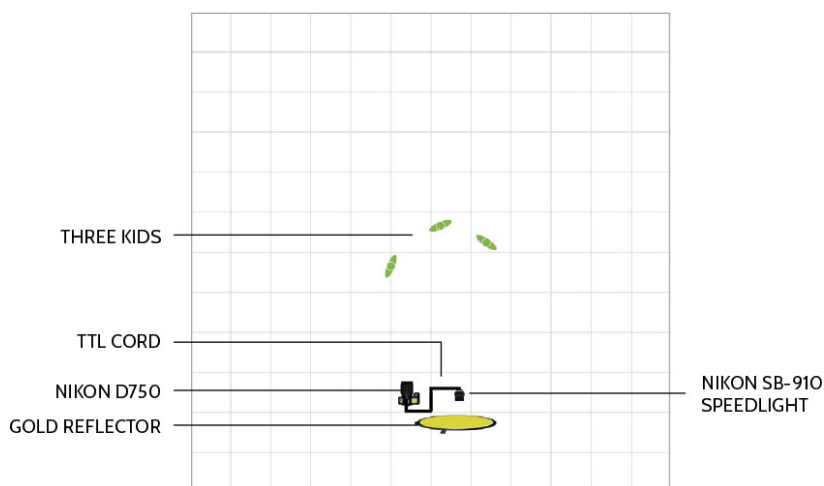
The photos of the kids were taken in their living room, which included a large window that provided great available light. I planned to supplement that light using the SB-910 on my camera to make that light bigger and softer. I set up the large gold



reflector to my right and angled it to bounce the light into the scene, creating a more natural-looking fill light. I could have tried to use the reflector alone to just bounce the window light, but I wanted more control over the direction of the bounced light. The kids were posed as shown in [Figure 15.16](#) with the reflector off to the side. You can see the lighting diagram in [Figure 15.17](#) .



**Figure 15.16** The kids were playing a game on the floor, so I positioned the flash and the reflector to bounce the light into the scene. I positioned the flash on the floor and attached the TTL cord so that the flash could stay in front of the reflector while I moved the camera.



**Figure 15.17** The lighting diagram shows where the reflector is in relation to the kids. Because the flash is attached to the

camera with the TTL cord, the camera can move without changing the flash position.

## Final Images

The key to getting this photo to look natural was not to overpower the natural sunlight but to add just some fill light to the image. It still needed to look as if the only light source was the sun coming through the window.

I wanted just a small pop of light to bounce off the reflector, so I set the Speedlight to Manual mode and the flash power to 1/16 as a starting point. The camera was set to Aperture Priority mode at f/5.6 and ISO 800. The shutter speed determined by the camera was 1/25 second for the first exposure, as shown in [Figure 15.18](#) .



NIKON D750 ISO 800 1/25 SEC. F/5.6 SB-910

**Figure 15.18** From this overhead angle, I can see that the light is actually pretty even over the kids, so now it is just a matter of changing the composition.

For the second shot, I got down on the floor and photographed the kids playing from their level ( [Figure 15.19](#) ).



NIKON D750 ISO 800 1/25 SEC. F/5.6 SB-910

**Figure 15.19** Changing my position didn't change the light at all because the flash and the reflector didn't move.

The key to this technique is to not overpower the existing light source or create a conflicting light source. The best way to check for a conflicting light source is to look at the shadows; they should fall in only one direction. If you see two distinct shadows in two directions, then the image will look unnatural.

## Cody

When photographing Cody in his home, I wanted to bounce the flash off a white wall to create a larger, softer light source. I had never been at the location before, so I packed a piece of white poster board that could be used as a stand-in for any white wall. Because Cody is a singer and songwriter, I wanted to get a natural feel to the images and have him playing a guitar.

## Equipment

The equipment for this shoot of Cody was really simple: a camera, flash, and bounce surface ( [Figure 15.20](#) ). I also brought along a portable black background in case I needed to block out the background. When I don't know what the shooting location will look like, I make sure I have some basic pieces that allow me to at least create a portrait against a black background.

■ **Nikon D750 DSLR** : You can use any DSLR for this photo.

- **24–70mm f/2.8 Nikkor lens** : I needed a lens that would allow me to capture both the subject and some of his surroundings, plus that would allow me to work in close. Because the flash was on the camera and needed to illuminate the scene with bounced light, I couldn't work further away. The 24–70mm lens worked perfectly.
- **Nikon SB-700 Speedlight** : Any of the Speedlights will work in this situation.
- **White poster board** : When you want to bounce your flash off a nearby wall or ceiling to create a softer light and nothing is available, a piece of white board will work as a substitute.
- **Black portable backdrop** : This portable backdrop is white on one side and black on the other. It works wonders as a backdrop or as a big flag to block out other light sources.



**Figure 15.20** This is a basic kit: a camera, lens, and flash, along with the portable backdrop and white board. Many times you will be able to use existing walls or ceilings to bounce the light. When you can't, a piece of poster board works great.

My plan for this shoot was to use the white poster board as a reflector to bounce the light into the scene. You could just as easily use a white wall or an actual reflector, but white poster board has two big advantages:

- **Inexpensive** : This piece of white board cost less than \$10 and has lasted me for more than a year. It isn't all that pristine anymore, but it does exactly what I want it to do: It

acts as a substitute for a white wall. I either lean the poster board against some furniture or use a big clamp and a light stand to hold it up.

- **Adjustable** : One of the nice things about having your own piece of reflective material is that you can place it where you need it. If you use an existing wall to bounce the light, you are limited by the angle; you can't just pick up and move the wall.

There are also some disadvantages:

- **Size** : A wall is bigger than any piece of board you are going to bring, so the light will be softer from the big wall.
- **Easily damaged** : The poster board is made of paper, so it is easily damaged and may need replacement quite often if you use it frequently.

I took the black backdrop with me as a precaution, in case I needed to block the light from bouncing off the background. Planning ahead paid off, because I did need to block the light and the backdrop made the whole process easier.

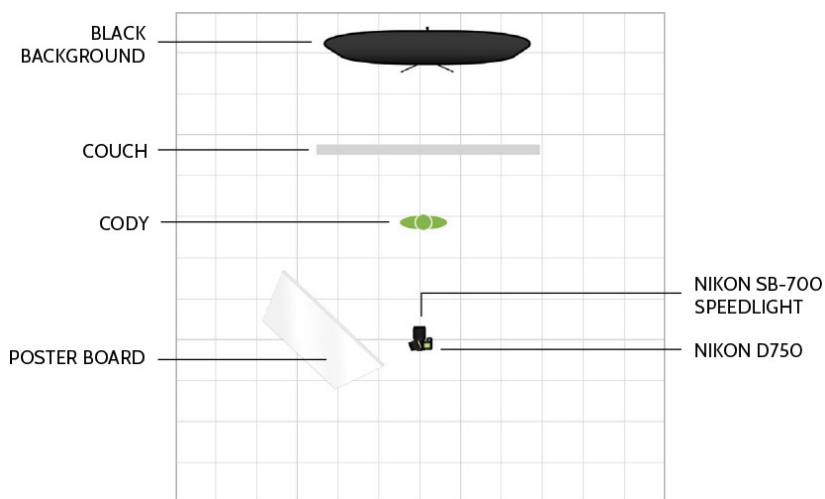
## Setup

The idea for this photo was to illuminate Cody with the light bounced off a white wall or if there wasn't a properly positioned wall, then off the white poster board instead. Bouncing creates a larger, softer light than with the straight flash. Many times you can bounce the light off a nearby wall or ceiling, which works great. When you don't have a wall handy or the ceiling is too high, however, a piece of white poster board or a white reflector is an effective substitute. The general concept is that the small hard light from the Speedlight becomes a larger softer light when it bounces off the larger surface. I placed the white board next to me at a slight angle and then just rotated the flash head so that it was aimed at the board and not at Cody. [Figure 15.21](#) shows the actual setup, while [Figure 15.22](#) provides a lighting diagram.





**Figure 15.21** You can see the position of Cody on the floor in front of the couch. The black portable backdrop behind him blocks the light from bouncing off the glass doors.



**Figure 15.22** As you can see in this lighting diagram, the setup for this shot is simple: The flash on camera is aimed and bounced off the poster board to the left, creating a large soft light that illuminates Cody who was sitting in front of the couch.

## Final Image

For this image, I took a series of test shots while Cody sat on the floor playing his guitar ( [Figure 15.23](#) ). I wanted to be sure that the angle and light were right.



NIKON D750 ISO 400 1/250 SEC. F/5.6 SB-700 ON CAMERA

**Figure 15.23** I took a few test shots of Cody to check whether the lighting was how I wanted it.

I set the camera to ISO 400, f/5.6, and 1/250, which got rid of most of the ambient light and allowed the reflected light from the white board to fill the room as planned. Once I had the lighting as I wanted it, I fine-tuned the composition by adjusting my position slightly and asking Cody to look up at me, as shown in [Figure 15.24](#). The SB-700 was set to TTL mode with the flash compensation set to +1 to pump out more light. This photo was a little flat as the light was a little flat, but it was a good start to where I wanted to go with lighting Cody.





NIKON D750 ISO 400 1/250 SEC. F/5.6 SB-700 ON CAMERA

**Figure 15.24** In this final shot of Cody, you can see the small light of the flash reflected in his eyes and the angle of the flash bouncing off the board, creating the shadow on his right side.

## Librarian

A great location and a willing subject can come together to make a really fun image. For this shoot, the library location was both great looking and challenging to use. The long shelves of books made lighting the subject difficult, especially because there was no spot to put the light where it wouldn't be in the photo.

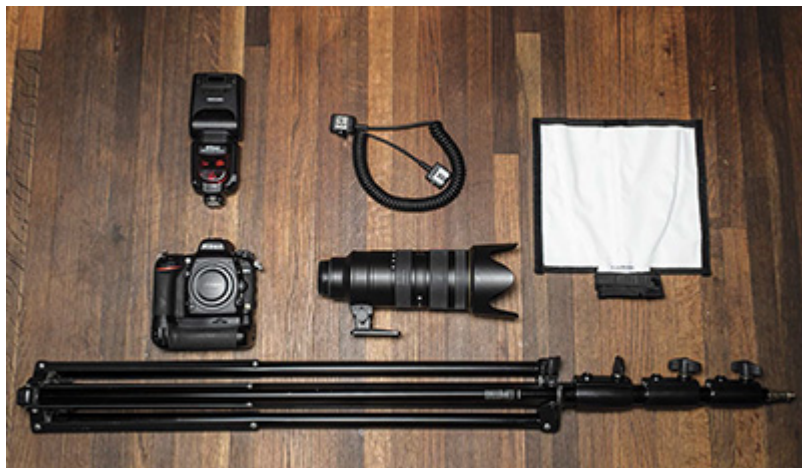
## Equipment

The equipment for this shoot needed to throw the light down the path between the shelves of books. Besides the camera and lens, I needed a way to control the spread of light because I didn't want the books to be brighter than the librarian.

- **Nikon D750 DSLR** : Any camera can do for this photo.
- **70–200 f/2.8 Nikkor lens** : I needed to work quite far back from the subject and wanted the long focal length to compress the scene. The 200mm focal length was perfect for this.
- **Nikon SB-910 Speedlight** : Almost any Speedlight can work in this situation. I wanted full power to reach the subject, so fresh batteries were a must, and the SB-500, SB-400, and SB-300 probably wouldn't have cut it.

- **Light stand** : I needed a way to keep the flash in the same place for the shoot, and a basic light stand worked great.
- **TTL cord** : The secret weapon in my camera bag is the TTL cord, which allows me to get the flash off the camera, like I did for this shot.
- **Snoot** : I needed to control the spill of the light so that it didn't strike the area closest to the camera first. A snoot was the way to go. Specifically, I used the Rogue FlashBender rolled up as a snoot.

The gear shown in [Figure 15.25](#) is all I needed to get this shot.



**Figure 15.25** The great part about using the Rogue FlashBender is that you can use it as a snoot (as I did for this shot) or to bounce the light, as you will see in [Chapters 16](#) and [17](#) .

## Setup

For this shoot, I used a combination of the window light coming in at the end of the library stacks and some fill light supplied from the snooted SB-910. The first step was to set the exposure for the ambient light in the scene. At ISO 1600 and f/2.8 with a shutter speed of 1/60 second, the scene was nice and bright with the window overexposed and completely white, as shown in [Figure 15.26](#) .



NIKON D750 ISO 1600 1/60 SEC. F/2.8

**Figure 15.26** This test shot shows the basic composition of the scene with the window overexposed. Next I needed to add the fill light and the subject.

I added the fill light using an SB-910 with a Rogue FlashBender acting as a snoot. To keep the light in position, I attached the flash end of the TTL cord to the light stand and then slid the flash into place. You can see how the flash is aimed down at the librarian in [Figures 15.27](#) and [15.28](#) . This allowed me to move the camera around and adjust the composition of the scene without having to worry about the light moving.

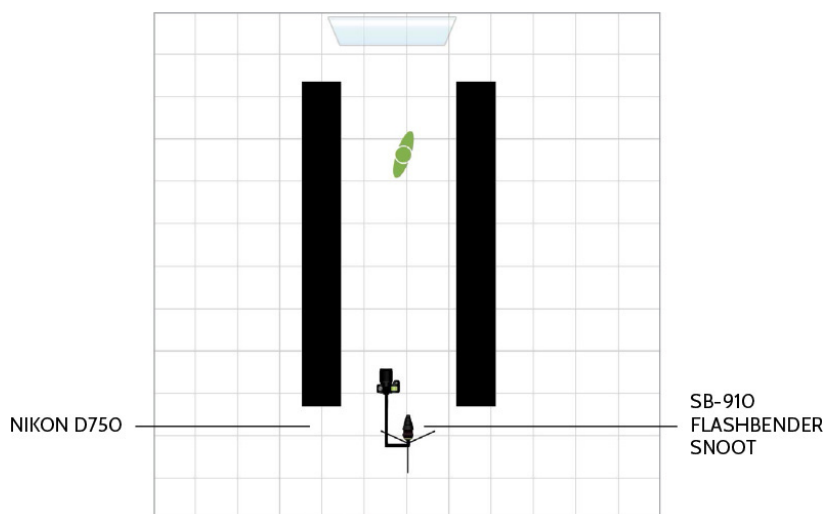


**Figure 15.27** I attached flash to the TTL cord and then attached it to the light stand using the mounting hole on the bottom of the TTL cord.



**Figure 15.28** Having the Speedlight mounted on a stand meant that I didn't have to worry about the light changing position when I moved the camera. The snoot kept the light from making the area closest to the camera too bright.

**Figure 15.29** shows the lighting diagram for this shot. This setup took advantage of the bright light coming through the window.



**Figure 15.29** The lighting diagram shows how simple this setup was.



## Final Image

Before taking the final image with the subject in place at the end of the rows of books, I needed to adjust the flash to light up her face and not just bounce off the window. I also increased the shutter speed to reduce some of the ambient light in the scene. The final image was shot at 1/125 second, f/2.8, and ISO 1600 with the flash set to TTL and +3 power to push the light down to the subject. You can see the result in [Figure 15.30](#) .



**Figure 15.30** Using the window light to illuminate the background and the flash to balance out the light, I captured the final image.

## Final Thoughts

Many times I have been expected to make an interesting or flattering image of someone at the last minute, using the materials on hand. Getting a great portrait with a single flash on the camera is difficult, but practicing beforehand with the same restriction can make succeeding in the real world easier. One way I stack the deck in my favor is to pack a TTL cord in my bag so that at the least I can try to get the flash up and off the camera, even if it is by only a foot or two.

As you will see in the following chapters, when you can take the flash off the camera, you can better control the angle of the light in relation to the camera for better results. But you need to have a starting point, and a single, on-camera flash is a good one.



## 16. Portrait Shoots with One Off-Camera Flash



The creative possibilities blossom when you move your flash off the camera. Not only can you change the direction of the light relative to the camera, you can also change the composition of your image without affecting the lighting. To demonstrate, this chapter revisits the subjects from [Chapter 15](#), but this time I used a single *off-camera* flash in Remote mode for the portraits. Although the techniques that follow use only a single flash as lighting, depending on which camera and Speedlight you are using, you might actually need *two* flash units, one as the light source and the other as the controller on the camera. For the images in this chapter, I used either the SU-800 or another Speedlight in Commander mode to trigger the remote flash. Because I used only one Speedlight off the camera, I kept it set as a remote in group A, using channel 1.

### Dancer

For the portrait of Jennifer at her Pilates studio, I wanted a really soft light on her. To get the biggest possible light on Jennifer, I used a large umbrella, which turns a small Speedlight into a big, softer light. The downside to using an umbrella instead of a softbox is that the light is not as controllable. The light blasts out of the flash into the umbrella, bounces all around, and comes blasting

back out in all directions.

## Equipment

The equipment for this shoot was basic: a single camera and lens and one off-camera SB-910 Speedlight with the SU-800

Commander to trigger it ( [Figure 16.1](#) ). To create the soft light, I decided to use a large umbrella, which needed a light stand and bracket to hold it. The umbrella I chose had a black removable cover, enabling it to serve as a shoot-through light modifier or a bounced light modifier. I chose to use it as a bounced light modifier, aiming the flash into the umbrella so the light was then bounced back at the subject. This gave me slightly more control over the spill of the light. Here's the entire gear list:

- **Nikon D750 DSLR** : You can use any camera for this type of shot.
- **24–70mm f/2.8 Nikkor lens** : The focal length range of this lens allowed me to capture the scene as I wanted. I could have used a longer lens but would have had to back up farther away from the subject, and there wasn't a lot of space to work.
- **Nikon SB-910 Speedlight** : The SB-910 gave me enough to power to really light up the whole scene, but any of the Speedlights that support Remote mode would have worked.
- **Nikon SU-800 Commander unit** : I needed a way to trigger the SB-910 from the camera, and the SU-800 is built for that task. Any Speedlight that can act as a Commander could be used or even the built-in flash, if your camera supports that function.
- **Umbrella** : An umbrella is a great way to create a soft light from a small flash. The umbrella that I used here was a convertible version, meaning it could be used with its cover in place to bounce the light out of the umbrella or as a shoot-through umbrella with the cover off. I used the Westcott 60-inch optical white satin umbrella without its black, removable cover for this shoot.
- **Light stand** : A light stand was needed to hold the umbrella and flash in place.
- **Flash bracket/umbrella holder** : This is the device that goes between the light stand and flash that the umbrella is attached to. It allows for the light to be angled up or down as needed.

- **Frio universal locking cold shoe** : This little wonder goes on the flash bracket and holds the flash in place. It works great, and I know that the flash isn't going to fall out or come loose.
- **Background stand kit** : Creating a studio on location requires a way to hang the backdrop, and these kits (like the Westcott Background Support System) are made for that exact purpose. The kit consists of two heavy-duty light stands and four metal rods. The rods combine to make a heavy-duty crossbeam that the backdrops hangs on.
- **Cloth background** : For this set of photos, I used a gray mottled cloth backdrop. You can get just about any color or pattern imaginable.



**Figure 16.1** The gear for this shoot was simple: a camera, lens, and flash. The big addition here over the gear used for [Chapter 15](#)’s “[Dancer](#)” portrait was the SU-800, which allows the SB-910 to be used remotely.

## Setup

The concept behind this image was to create a large, soft light to illuminate Jennifer. For this, I placed the Speedlight and umbrella on a light stand off to the camera’s right. The SB-910 was placed in the Frio cold shoe and aimed into the umbrella ( [Figure 16.2](#) ) so that the light bounced out of the umbrella and onto the subject. For shots like this, be sure that the remote sensor on the Speedlight can see the signal from the SU-800 on the camera.



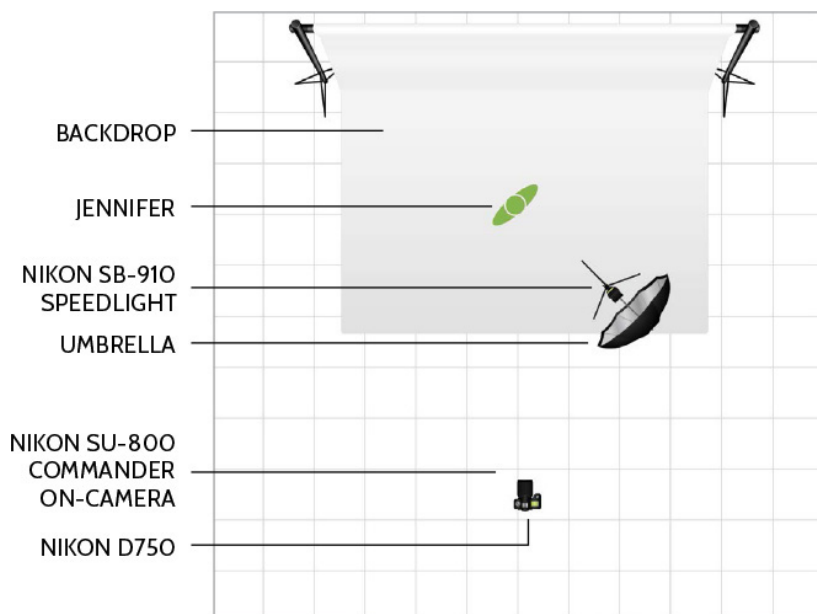
**Figure 16.2** Here the SB-910 is mounted in the Frio cold shoe and placed on the light stand. I attached the umbrella by sliding the shaft into the hole and then tightening the locking screw.

I next positioned the light in front of Jennifer and aimed it by pointing the shaft of the umbrella that comes out of the umbrella holder where I wanted the light to go. When using this technique, don't worry about absolute accuracy, because the light will spread out and go everywhere. You can see the basic setup in [Figures 16.3](#) and [16.4](#) . The light is up high and off to the side with Jennifer looking up to the light.



NIKON D750 ISO 320 1/80 SEC. F/2.8

**Figure 16.3** The SB-910 is inside the umbrella and aimed back so that the light bounces out of the umbrella. The single Speedlight produces a pleasing soft light.



**Figure 16.4** The lighting diagram for this image shows the placement of the light, subject, and backdrop.

## Final Image

For the final image, I set the SB-910 to Remote mode using channel

1 and group A and triggered it from the camera using the SU-800 Commander. The flash mode was set to TTL, and the power was increased by +1. I set the camera to Manual mode with a 1/80-second shutter speed, an f/2.8 aperture, and an ISO of 320. I did not have to worry about freezing the action, so a slower shutter speed was perfectly fine. The shallow depth of field created by the aperture of f/2.8 still wasn't enough to blur out the backdrop because the distance between the backdrop and the subject was small ( [Figure 16.5](#) ).





**Figure 16.5** The soft light is perfect for a photograph of a ballerina, and because the flash wasn't on the camera, I could move around and change the composition without affecting the position of the light.

## Dugout

Getting the flash off the camera allowed me more flexibility in the cramped dugout. I still lit Sam from the front, but I was able to change my shooting position, which changed the whole composition of the image.

## Equipment

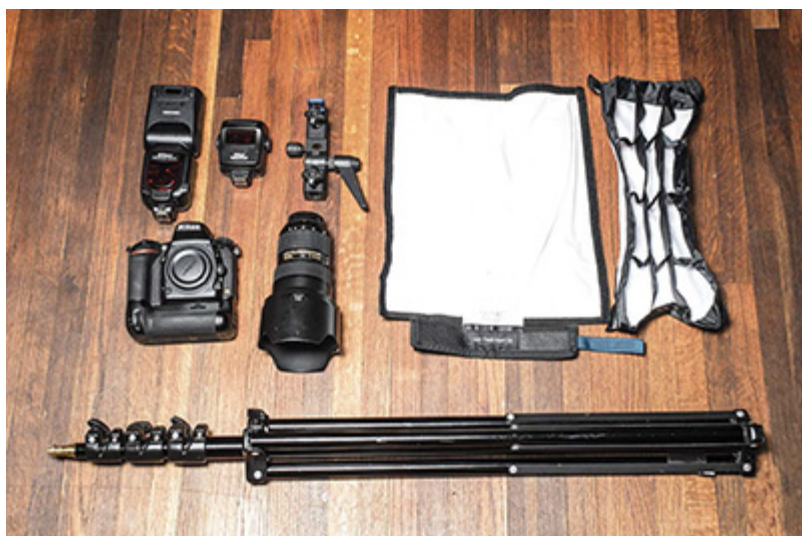
The equipment for this shoot was nearly identical to what I used for the “[Dancer](#)” portrait, with the exception of the light modifier. For this shoot, I used the new Rogue FlashBender 2 XL Pro Lighting System instead of the large umbrella. As you'll see, that small change in gear changed the whole look of the image. Here is the complete list for this shoot ( [Figure 16.6](#) ):

- **Nikon D750 DSLR** : You can use any camera for this type of shot.
- **24–70mm f/2 .8 Nikkor lens** : I wanted to use a wider angle here to get more of the surrounding area in the photo. The 24–70mm focal length range was ideal.
- **Nikon SB-910 Speedlight** : I chose the SB-910, but for this type of shot you could use any Speedlight that supports Remote mode. Because of the size of the light modifier, however, I would stick with the SB-600, SB-700, SB-800, or SB-900/910 and avoid the smaller SB-500, because it will have issues connecting to the FlashBender 2 XL Pro.
- **Nikon SU-800 Commander unit** : I needed a way to trigger the SB-910 from the camera, and the SU-800 is built for that task. Alternately, you could use any Speedlight or built-in flash that can act as a Commander.
- **Rogue FlashBender 2 XL Pro Lighting System** : This is the largest FlashBender that Rogue makes, and when used with the strip grid, it produces a larger light that is still well controlled. Unlike an umbrella, the light does not spill out all over the place but is kept contained by the grid.
- **Light Stand** : A light stand held the flash and light modifier



in place.

- **Flash bracket/umbrella holder** : This is the device that goes between the light stand and flash. It allows for the light to be angled up or down as needed, and for this shot I used it without the umbrella.
- **Frio universal locking cold shoe** : This little wonder goes on the flash bracket and holds the flash in place. It works great, and I know that the flash isn't going to fall out or come loose.



**Figure 16.6** You could easily carry the whole set of gear used for this photo in a small bag.

This was the first time I had used the Rogue FlashBender 2 XL Pro Lighting System on a shoot. This large light modifier needs to go over a Speedlight that is pointed straight up ( [Figure 16.7](#) ); then you can add the included strip grid over the front of the modifier ( [Figure 16.8](#) ) to control the spill of the light.



**Figure 16.7** The Rogue FlashBender 2 XL Pro Lighting System attaches to the SB-910 Speedlight and vertically creates a large reflective surface.



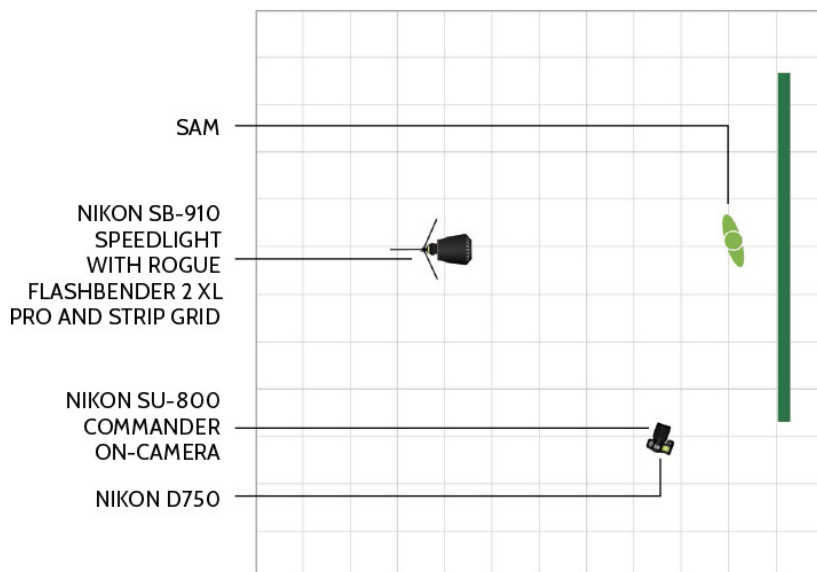
**Figure 16.8** Attaching the strip grid to the FlashBender 2 XL Pro gives you more control over the light spill.

## Setup

For this version of the Dugout portrait, I mounted the SB-910 on the light stand using the flash bracket and the Frio cold shoe. Next, I attached the FlashBender 2 XL Pro and the strip grid to the flash. [Figures 16.9](#) and [16.10](#) illustrate the position of the light and Sam.



**Figure 16.9** I positioned the single Speedlight with the Rogue FlashBender 2 XL Pro Lighting System positioned in front of the dugout.



**Figure 16.10** The lighting diagram for the dugout photo is simple.

I positioned the whole setup in front of Sam to start. After a few test shots and adjusting the position of the light, I found the setup I wanted. The next step was to dial in the exposure.

With the camera set to Manual mode with 1/200-second shutter speed, an aperture of  $f/6.3$ , and an ISO of 400, I set the flash mode

for the remote SB-910 to TTL using the SU-800 on the camera. The TTL mode allowed the flash to adjust the flash power automatically depending on the camera settings and the light meter reading. This resulted in an image that was well exposed but too bright for what I wanted, as you can see in [Figure 16.11](#) .



NIKON D4 ISO 800 1/60 SEC. F/5.6

**Figure 16.11** Photographing Sam in the dugout with the flash set on TTL created a properly exposed image, but it was too bright for my liking.

The last step was to reduce the output of the flash to get the exposure that I wanted, not what the flash thought was correct.

## Final Image

I captured [Figure 16.12](#) , the final image, with the SB-910 set to Remote mode, channel 1, and group A. I triggered the Speedlight from the camera using the SU-800 with the flash mode set to TTL and the power set to -1. This gave me the proper exposure with the camera set to ISO 400, f/6.3, and 1/200 second.



NIKON D750 ISO 400 1/200 SEC. F/6.3

**Figure 16.12** With the flash power controlled from the SU-800, I was able to adjust the power of the flash from the camera to fine-tune the exposure without having to move. For this final image, I had Sam look over to the camera.

## Kids

For [Chapter 15](#)’s photograph of kids playing, I used a gold reflector to bounce some light from the on-camera flash into the scene. This time, by taking the Speedlight off the camera, I was able to light the scene and then move around unencumbered so I could focus on the kids instead of on where the light was. My goal for this photo was to have a single light set up that would illuminate the entire scene, allowing me to concentrate on the kids and wait for the right moment to take the photo.

## Equipment

The minimal amount of gear I used for this shot was on purpose; I didn’t want to spend too much time setting up lots of stands, lights, and modifiers. I have found that when working with kids, the faster you set everything up, the more photos you can actually take. Using the built-in flash on the Nikon D750 meant that I needed only one Speedlight and one set of batteries. Here is the gear that I used for these photos:

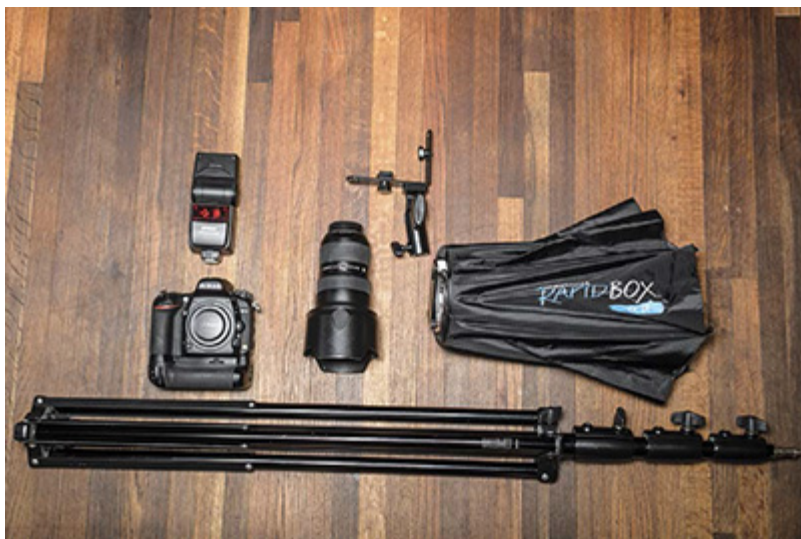
- **Nikon D750 DSLR** : I used the Nikon D750 because it has the ability to use the built-in flash as a Commander for the



off-camera Speedlights.

- **24–70mm f/2.8 Nikkor lens** : The distances in the room dictated that I needed a wider-angle lens.
- **Nikon SB-600 Speedlight** : I chose the SB-600 because it can be used as a remote and can be triggered by the built-in flash on the D750.
- **Wescott Rapid Box** : This softbox is sturdy, is easy to set up, and comes with all the hardware needed to mount the flash into the modifier.
- **Light stand** : I needed a way to position the softbox, and a good light stand was the way to go.

**Figure 16.13** illustrates how little gear was actually used for this photo.

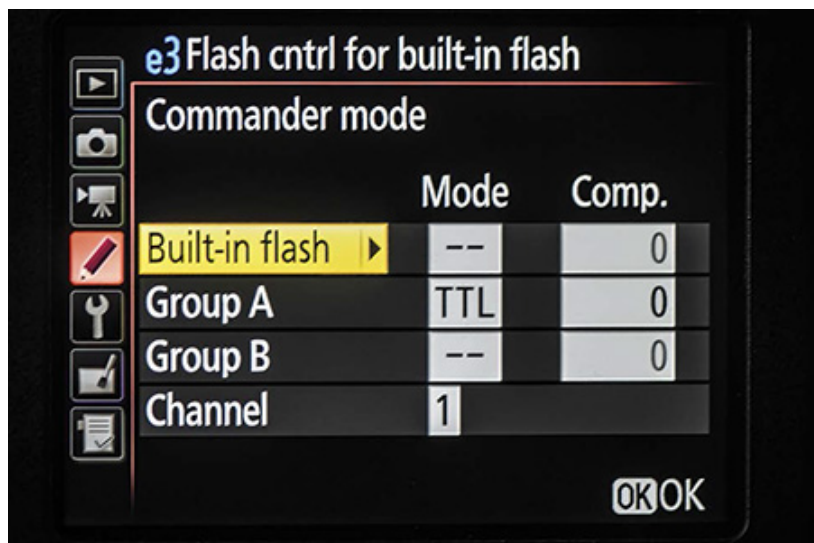


**Figure 16.13** I needed only one flash for this shot because I could use the built-in flash on the D750 to trigger the SB-600 Speedlight.

## Setup

For a shot like this, your first step is to set up the built-in flash as the Commander used to trigger the off-camera flash. Use the menu system on the camera, a D750 in my case, to set the flash to Commander mode, and from there you can set the mode and power of the remote flash. I set the Remote SB-600 Speedlight to channel 1 and group A so that it was the only flash firing. **Figure 16.14** shows that the settings that trigger the remote flash in TTL mode will not fire the built-in flash.





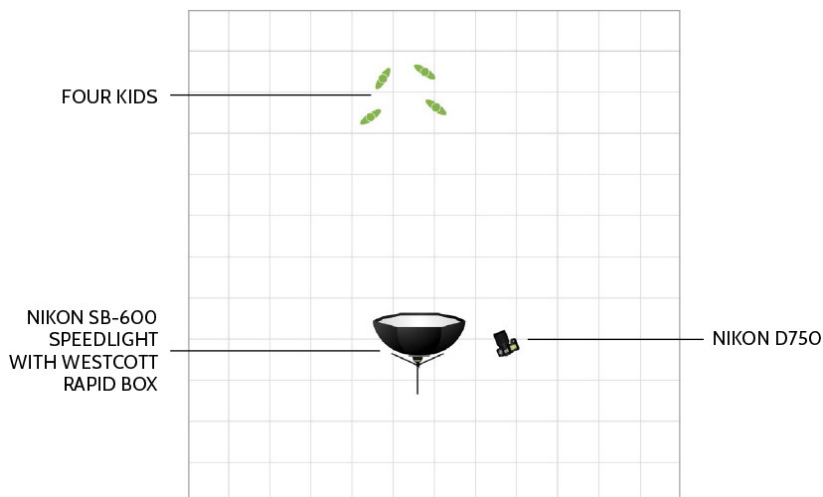
**Figure 16.14** Use this menu on the D750 to set the built-in flash to Commander mode.

After I placed the SB-600 in the Westcott Rapid Box, I positioned the flash at the far end of the room as high up as possible and aimed slightly downward to make the light look more natural. Although it wasn't as soft as it would have been if the light was closer, it did produce a more even lighting on the different faces. You can see the position of the light in [Figure 16.15](#) and the lighting diagram for the setup in [Figure 16.16](#) .



NIKON D4 ISO 200 1/250 SEC. F/8

**Figure 16.15** The SB-600 was set up off-camera in the softbox and placed quite far away from the kids playing. You can see that the softbox was placed high up and angled slightly down to mimic the natural direction of sunlight.



**Figure 16.16** The position of the single light across from the subjects shows how little gear was actually used for this image.

## Final Image

The session started with three kids playing, but along the way to the final shot, they were joined by another playmate. To be clear, this was not a posed group shot, instead just a moment captured in time. Once the light is set up and working for this kind of shot, you can just sit and wait until the moment is right. For [Figure 16.17](#), I waited until Noah turned to the camera and then took the photo. The one technical aspect to pay attention to when using the built-in flash to trigger an external, remote Speedlight is that the remote flash needs to see the built-in flash. Make sure you're positioned where the camera isn't too far forward of the remote Speedlight.



NIKON D750 ISO 400 1/125 SEC. F/10

**Figure 16.17** With the light setup and in position, all you now have to do is wait until you get the expression you want.

## Cody

In the previous chapter, I photographed Cody with a single flash on the camera using a white poster board to bounce the light. With the flash removed from the camera, I was able to use a softbox as a small flash modifier, which gave me more control over the light.

## Equipment

The main piece of equipment for this shoot is the Westcott Rapid Box Octa light modifier. This softbox is easy to use and produces a really great light. As a bonus, it isn't expensive. **Figure 16.18** shows the gear for this shoot, and here's the list:

- **Nikon D4 DSLR** : You can use any of the Nikon DSLRs for this type of shoot. Because the D4 does not have a built-in flash, I needed a second flash to trigger the remote Speedlight.
- **70–200mm f/2.8 Nikkor lens** : The longer focal lengths compress the background allowing me to zoom in tight and keep the background black using the portable backdrop. I prefer to shoot at the longer focal lengths, but often there isn't enough space because you need at least 4.6 feet between the subject and the front of the lens.
- **Two Nikon SB-910 Speedlights** : I used one flash in

Remote mode to light up the scene, while the other was the Commander to trigger it. If you have a camera that allows the pop-up flash to trigger the remote, you do not need the second Speedlight.

- **Nikon SB-910 Diffusion Dome SW-13H** : Adding the diffusion dome to the flash that goes into the softbox helped to diffuse the light even more.
- **Westcott Rapid Box Octa** : This softbox is designed for use with small a flash and does a great job. It comes with a flash holder that enables you to tilt it, so you don't need any additional hardware.
- **Light stands** : The softbox needed to be positioned on a light stand, and a second light stand held the background. When choosing a light stand, make sure to get one that is sturdy enough to hold both your flash and any modifiers you might use.
- **Clamp** : I used a basic clamp to attach the background to a light stand so that it didn't fall over. (I usually just lean it up against a wall.)
- **Black portable backdrop** : This portable backdrop is white on one side and black on the other. It works wonders as a backdrop or as a big flag to block out other light sources.



**Figure 16.18** This shoot needed two Speedlights, one as the remote flash and one as the Commander unit, because the D4 doesn't have a built-in flash to trigger the off-camera flash.

The Westcott Rapid Box comes with the hardware that allows the

flash to be mounted so that the flash goes in the back of the softbox. With the diffusion dome on the flash, the fit can be tight, but careful positioning of the flash will make it fit. You can see the flash attached to the softbox in [Figure 16.19](#) .



**Figure 16.19** Here the SB-910 is mounted in the Westcott Rapid Box Octa. You can see the fit is pretty tight with the diffusion dome in place, but it will fit.

## Setup

The setup for this shot was similar to the image in [Chapter 15](#) . Instead of having Cody on the floor in front of the couch, however, I asked him to sit on the couch and aimed the softbox at him from across the room. The tighter composition resulting from the 70–200mm focal lengths allowed me to use the backdrop behind Cody to create a clean, black background. I clamped the backdrop to a second light stand to keep it from falling over. The distance between Cody and the backdrop was great enough that the light



didn't lighten the black background.

**Figure 16.20** shows the position of both the softbox and the background. To get a better idea of the position of the softbox in relation to Cody, see **Figure 16.21**.



**Figure 16.20** The basic setup shows the position of the backdrop and the position of the softbox.



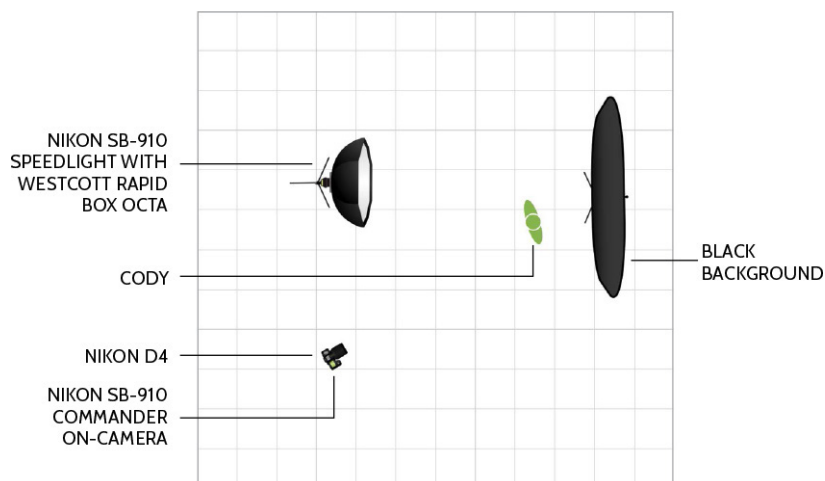
**Figure 16.21** You can see the softbox in relation to where Cody is sitting and playing.

You can see that the wall is actually a series of glass doors that would reflect the light from the flash if the light was not



controlled. If, for example, I used an umbrella, the light would also bounce off the window creating unwanted light on the subject. Using the softbox gave me more control over the spill of light.

The lighting diagram ( [Figure 16.22](#) ) for the photos shows that the softbox is actually aimed a little to the left of Cody, allowing for some shadows on the right side of the frame, as you will see in the final images.



**Figure 16.22** In the lighting diagram for this image, notice the position of the softbox. Remember, you need to position yourself where the flash on the camera can be seen by the flash in the softbox.

## Final Images

The first SB-910 was set to Remote mode and mounted in the Westcott Rapid Box, and the second SB-910 was set to Commander mode and mounted on the camera. I set both of the Speedlights to channel 1 and the remote to group A. For the camera's settings, I chose Manual mode, 1/250 second, f/5.6, and ISO 100. These settings rendered the background a pure black and gave me enough of a depth of field to make sure that Cody and his guitar were both in focus. The SB-910 that acted as the Commander set the Flash mode for group A to Manual and the power at 1/8. This resulted in [Figure 16.23](#) , which still looked a little bright to me, so I adjusted the power of the flash down to 1/16, which resulted in [Figure 16.24](#) . The power of the Nikon CLS system is that you can change the power of the flash from the camera without having to actually touch the flash.



NIKON D4 ISO 100 1/250 SEC. F/5.6

**Figure 16.23** A tight portrait of Cody with his Taylor guitar used light from a single SB-910 in a softbox.



NIKON D4 ISO 100 1/250 SEC. F/5.6

**Figure 16.24** Using the same settings as the previous image but with a slightly lower flash power created a slightly moodier image.

## Librarian

Photographing a librarian between rows of books, also known as the library stacks, is a lot more fun when you can position a remote flash. The idea for this photo was to hide the light between the books so that the light is coming out from where the librarian is looking. The most difficult part of this photo was to position the Commander unit in a way that the remote flash could see it.

## Equipment

The equipment for this shot was similar to the list for [Chapter 15](#) 's librarian portrait with the addition of the SU-800 and the Justin clamp:

- **Nikon D750 DSLR** : Any of the Nikon DSLR cameras can work.
- **70–200 f/2.8 Nikkor lens** : I needed to work quite far back from the subject and wanted the long focal lengths to compress the scene.
- **Nikon SB-910 Speedlight** : Any Speedlight that can be set to Remote mode can be used here. I chose the SB-910 because it was the flash I had on hand.
- **Nikon SU-800 Commander unit** : To trigger the off-camera flash, I needed the SU-800 Commander unit (or a second Speedlight). In this scenario you cannot use the built-in flash to trigger the remote flash because it can't see the camera.
- **Rogue FlashBender** : I wanted to control the spill of the light as it came through the bookshelf, and the large FlashBender allowed me to do that by adjusting the bounce off the light.
- **Justin clamp** : The SB-910 needed to be clamped to the backside of the bookshelf and a Justin clamp was the best tool for the job. It is possible to use a second light stand or a different clamp, but this works great.
- **Light stand** : I needed a way to keep the SU-800 in position so that the SB-910 could see the trigger signal.
- **TTL cord** : I used the TTL cord so that I could move the SU-800 off the camera and in position to trigger the SB-910.

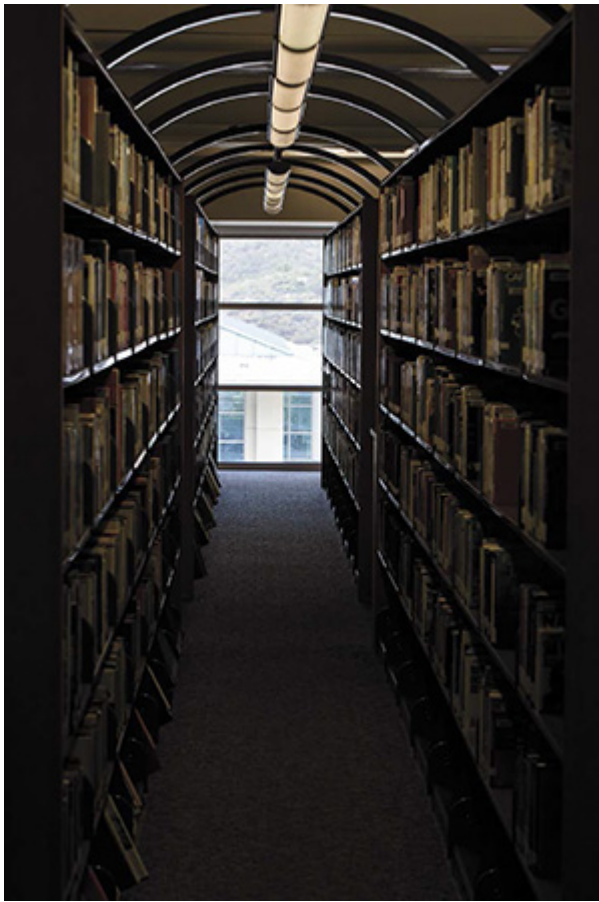
The gear shown in [Figure 16.25](#) is all I needed to get this final photograph of the librarian in the library stacks.



**Figure 16.25** The TTL cord is the piece of gear that allows me to move the SU-800 off the camera and still trigger the SB-910 in Remote mode.

## Setup

The setup for this image was similar to the setup in [Chapter 15](#) . I designed the composition to use the library stacks as a frame for the librarian. You can see the basic idea in [Figure 16.26](#) , which is lit by the light coming through the window. Because the Speedlight is positioned in the next row over, the SU-800 needed to be positioned on the light stand and connected to the camera using the TTL cord ( [Figure 16.27](#) ).



NIKON D750 ISO 800 1/250 SEC. F/9.0

**Figure 16.26** The library stacks are lit by overhead lights and the window at the end, but I wanted the main light to be hidden behind the books.



**Figure 16.27** The SU-800 was mounted in the TTL cord, which is then mounted on the light stand. This allowed me to position the SU-800 where the SB-910 could see it at the end of the row.

I mounted the SB-910 in the Justin clamp and clamped it to a book on the backside of the shelf that the librarian would be looking at. The flash was oriented so that the light was aimed up. I attached the FlashBender to make the light bounce through the shelf. You can see the flash positioned on the back of the shelf in [Figure 16.28](#) and, in [Figure 16.29](#) , what it looks like on the side where the subject will be standing.



**Figure 16.28** You can see the flash positioned in the clamp with the FlashBender attached. It is important that the sensor on the flash can see the SU-800 Commander. I used the clamp

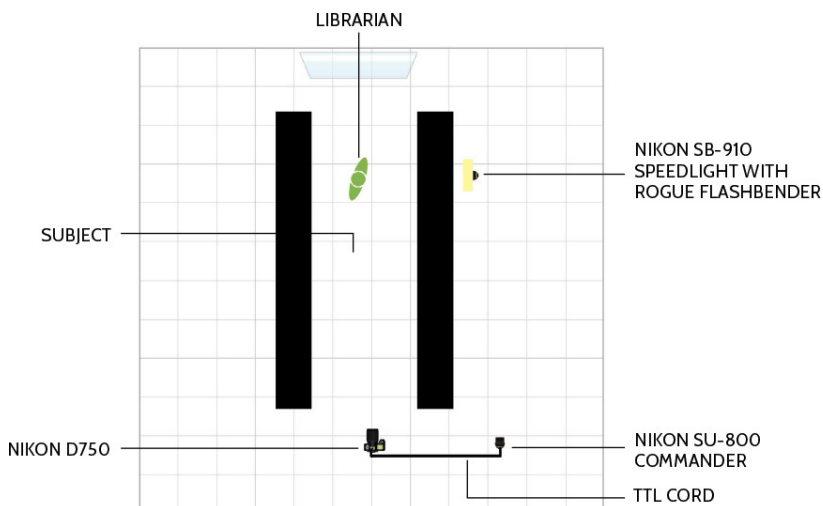


on a book on the lower shelf to position the flash so that the FlashBender was just below the shelf to prevent the light from lighting the ceiling.



**Figure 16.29** Here is the view that the subject has of the light. You can see that the FlashBender is placed so that the light bounces through the bookshelf.

The lighting diagram in [Figure 16.30](#) shows the placement of the flash and the SU-800 that triggered it in relation to the camera and the subject. The TTL cord from the camera to the SU-800 allowed me to position the SU-800 to create a line of sight between it and the SB-910. This is a situation where a radio trigger could have been used instead, but then I would have had to adjust the flash power on the flash instead of on the Commander, which would have been disruptive to the shoot.



**Figure 16.30** The lighting diagram shows the relationship between the SB-910 and the SU-800 made possible by using the TTL cord.

## Final Image

For the final image, I set the camera to Manual mode and underexposed the scene slightly with a 1/250-second shutter speed, f/16 aperture, and ISO 800. On the SU-800, I first set the flash mode to Manual and used a 1/8 power setting. That proved to create too much light, so I reduced the power to 1/16, which produced the result in [Figure 16.31](#). You can see how the light illuminates the face and arm of the librarian, while the bottom half of the photo falls to deep shadow. There is also a small spill of light on the bookshelf behind the librarian, which I am fine with, and it helps to keep the viewer's eye in the photo.



NIKON D750 ISO 800 1/250 SEC. F/16

**Figure 16.31** A librarian working in the library stacks lit by a single off-camera flash positioned on the shelf makes for an interesting photo.

## Final Thoughts

All the photos in this chapter were really fun to work on. Limiting the number of lights made me think of different ways to light the

subjects and not just rely on more flashes to get the job done.

The subjects in this chapter are not models, but instead they are exactly what they were photographed doing. These are normal people: a dancer, a high-school baseball player, some kids playing a game, a local musician, and a college librarian. When photographing regular people doing what they do, I think back to what my friend and great photographer Glyn Dewis said about giving his subjects a role to play. When he photographs our friend Dave Clayton, he gets Dave to play a role, to become a character. That's what I asked of my subjects here, to play as a dancer, baseball player, musician, and librarian. (You don't have to coach kids to pretend to be kids; they're pretty good at it on their own.) In other words, if the person in front of the camera is shy or stiff, have them play as a character, even if that character is their real-life job.



NIKON D750 ISO 400 1/60 SEC. F/2.8

For this photo of musician Jessica Lerner, I used the bright light streaming in through the window to light her and set the speedlight behind her to brighten up the background. The SB-800 was set to Remote mode and triggered by the built-in flash on the D750 camera. You don't always need to have the off camera flash supply the main light in the image.

## 17. Portrait Shoots with Multiple Off-Camera Flashes



Having two, three, or more flashes allows you to ratchet up the creativity even more with your lighting. In this chapter, I use a couple of Speedlights to start adding little touches of light to enhance the image. The images in this chapter were all lit with two off-camera Speedlights, building on the setups in [Chapter 16](#) . The more lights you have, the more options open up.

### Dancer

Matching the light to the subject for this portrait meant trying to create the largest, softest light possible. For the previous chapter's photos of Jennifer, I used a large umbrella alone. For this round, I added another large modifier: a softbox. Having more lights gives me more options. Either I can use the light as a large light source to add lots of illumination to the scene or I can use that additional light to bring out extra details in the image that previously were obscured or hidden. In this section, I will show you how I did both.

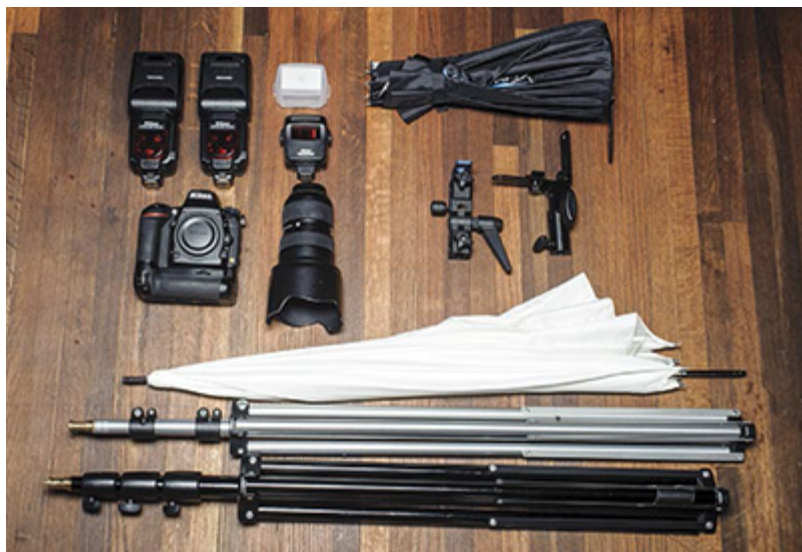
### Equipment

The equipment for this shoot ( [Figure 17.1](#) ) includes two Speedlights and both a softbox and an umbrella to turn a small light into a bigger, softer light. Most photographers have this

combination on hand because many times photographers start with an umbrella and then get a softbox. Here's the complete list of gear:

- **Nikon D4 DSLR** : You can use any camera for this type of shot. The Nikon D4 does not have a built-in flash, so a separate method is needed to trigger the remote Speedlights.
- **24–70mm f/2.8 Nikkor lens** : I was still shooting quite wide and needed to be close. The 24–70mm focal lengths worked perfectly.
- **Two Nikon SB-910 Speedlights** : I needed two off-camera flashes for this shoot. You can use any two of the Speedlights that can act as remotes.
- **Nikon SB-910 Diffusion Dome SW-13H** : Diffusing the light as much as possible means using the diffusion dome on the Speedlights to bounce the light around before it reaches the diffusion material of the softbox or umbrella.
- **SU-800 Commander unit** : I needed a way to trigger both off-camera flashes, and the SU-800 did a great job. Because I was using only two off-camera flashes in two groups, I could use any of the flashes that have a Commander mode or even a camera's built-in flash.
- **Westcott Rapid Box Octa** : For this shoot, I created soft light with both this softbox and an umbrella. The softbox is a little more controllable.
- **Convertible umbrella** : This umbrella is both a shoot-through and bounce umbrella depending on whether the black cover is on or off. In [Figure 17.1](#) , the umbrella is shown with the cover off.
- **Flash bracket/umbrella holder** : This is the device that goes between the light stand and flash. It allows for the light to be angled up or down as needed and can be used with or without the umbrella.
- **Light stands** : I needed a light stand for each of the Speedlights.
- **Background stand kit** : I used the background stand kit to hang the cloth backdrop creating a studio look on location.
- **Cloth background** : For this set of photos I used a gray, mottled cloth backdrop. You can get just about any color or pattern imaginable.





**Figure 17.1** Here is the gear used for the shoot, minus the cloth backdrop and background stand kit. The umbrella is shown with the cover off.

## Setup

Before I shot the final portrait of the dancer, I wanted to revisit the photo taken with one off-camera flash and see what would happen if I added a second light to add some illumination to her hair or, more specifically, the flowers in her hair. As you can see in [Figure 17.2](#), I added the second SB-910 to a light stand behind the subject and aimed the flash at the back of her head. I added a Rogue Grid to the light to keep the spread of light from spilling over on her face. This remote Speedlight was set to channel 1 and group B, while the main light was set to channel 1 and group A. On the SU-800, I set group A to TTL and its power to +1, while I set group B to Manual and 1/8 power. Finally, I set the camera to Manual mode using a 1/80-second shutter speed, an f/2.8 aperture, and an ISO of 320.



**Figure 17.2** I first set up the Speedlights to add a hair light striking the flowers at the back of Jennifer's head.

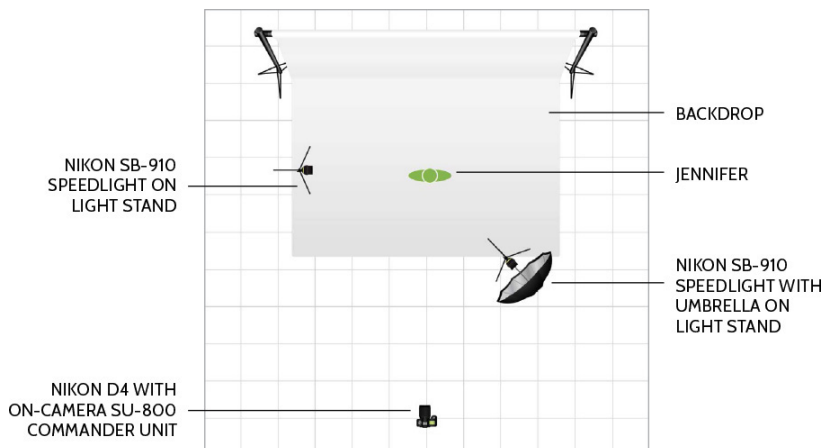
**Figure 17.3** shows the resulting image. As you can see, it does brighten up the hair quite a bit and shows that although it isn't needed to make a good portrait, having access to an extra light can help. The lighting diagram for **Figure 17.3** is shown in **Figure 17.4**

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NIKON D4 ISO 320 1/80 SEC. F/2.8

**Figure 17.3** With Jennifer in the chair, the bounce umbrella provides the main light, and the SB-910 with a Rogue Grid creates the hair light.

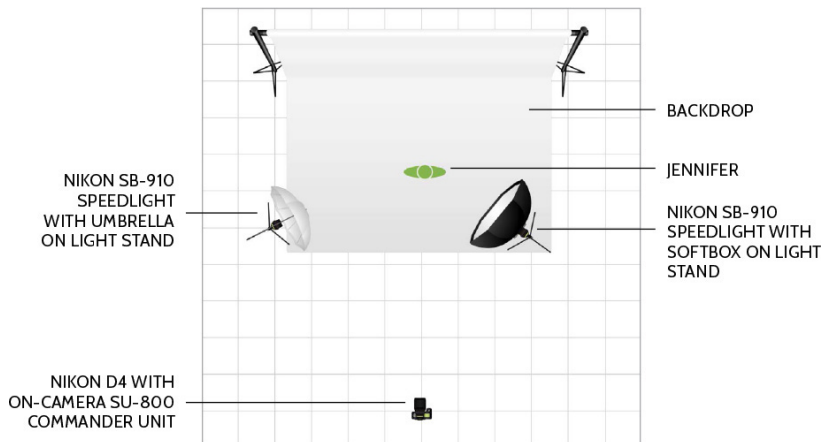


**Figure 17.4** The lighting diagram shows the placement of the SB-910 as the hair (flower) light.

For the final lighting setup, I used two Speedlights with different modifiers, one on either side of Jennifer, to create a soft light throughout the image. The main light that was aimed at her face, the SB-910, was in a Westcott Rapid Box and set to Remote mode, channel 1, and group A. The second light was behind her, fired through a shoot-through umbrella and set to channel 1 and group B. This allowed me to control the power of both lights from the camera position using the SU-800. You can see the lights set up in [Figure 17.5](#) and the lighting diagram in [Figure 17.6](#). It was important to make sure that the Speedlights were positioned so that the sensor on the flash could see the SU-800 because the system works on line of sight.



**Figure 17.5** The two-light setup placed the softbox in front and aimed at the front of the subject, and the umbrella placed in the back added fill.



**Figure 17.6** The lighting diagram for the hair light shows the position of the two lights in relation to the camera and subject.

## Final Images

Using the same lighting setup, I took two different photos of Jennifer. The first, a slight variation of the previous chapters' photos, had the ballerina sitting on the ground instead of in the chair. The lighting for [Figure 17.7](#) comes from the two Speedlights. Both Speedlights were set to channel 1 with the light in the softbox set to group A, while the light in the umbrella was set to group B. The SU-800 had both groups set to TTL with the power of group A set to 0 and the power of group B set to -1.



NIKON D4 ISO 320 1/80 SEC. F/2.8

**Figure 17.7** For this portrait of Jennifer, two lights illuminated the scene with more light coming from the front light.

For the final image, I had Jennifer strike a dance pose. Because the lighting was already set up, the most difficult part of this image was the timing of the photograph. Simple is always the preferable route, so I counted to three and then pressed the shutter release button. Jennifer went into the pose so that she would be in position when I reached three ( **Figure 17.8** ). For the final image I increased the shutter speed, and because the Speedlights were in TTL mode, they kept up creating the same even lighting. Group A was set to TTL with the power set to + 1 and group B was set to TTL and power of 0.





NIKON D4 ISO 320 1/400 SEC. F/2.8

**Figure 17.8** As Jennifer hit her pose, she was lit with the two Speedlights.

## Dugout

When photographing Sam in the dugout, I have been using the light to create a more dramatic photo with harder light. In the previous examples, I had Sam sitting in the dugout, but this time I



asked him to come forward and lean on the railing. This allowed me to light him both from the front and from the side, which provided some separation between Sam and the background.

## Gear

The gear for this shoot is a combination of the gear used in [Chapters 15](#) and [16](#) for the photos of Sam. For this image, I used the Rogue Grid and the FlashBender 2 XL Pro Lighting System. Here's the complete list ( [Figure 17.9](#) ):

- **Nikon D750 DSLR** : You can use any camera for this type of shot. The D750 has a built-in flash that allows you to trigger the off-camera flashes right from the camera.
- **24–70mm f/2.8 Nikkor lens** : I chose to use a focal length that would allow me to capture some of the dugout surrounding Sam.
- **Nikon SB-910 Speedlight** : Any of the Nikon Speedlights that can be used as a remote can be used here. Because of the size of the light modifier, I would stick with the SB-600, SB-700, SB-800, SB-900, or SB-910, but I don't recommend the smaller SB-500 because it would have issues connecting to the FlashBender 2 XL Pro because of its smaller flash head.
- **Nikon SB-800** : For the second light, I used the older SB-800 Speedlight. Even though this flash is discontinued, that doesn't mean it is obsolete. You could use any of the Speedlights as long as the one you choose supports Remote mode.
- **Nikon SU-800 Commander unit** : I needed a way to trigger the off-camera flashes. You could use any Speedlight or built-in flash that can act as a Commander.
- **Rogue FlashBender 2 XL Pro Lighting System** : This is the largest FlashBender that Rogue makes, and when used with the strip grid, it produces a larger light that is still well controlled with little spill.
- **Rogue Grid** : This is a great small flash modifier to choose when you want to create a tight beam of light. With the three different grid patterns, it is more versatile than a snoot.
- **Light stands** : A light stand is needed to hold the flash and light modifier in place. For this photo I needed two, one for

each flash.

- **Flash bracket/umbrella holders** : This is the device that goes between the light stand and flash. It allows for the light to be angled up or down as needed and used with or without an umbrella. I needed two of them, one for each flash.
- **Frio universal locking cold shoe** : This little wonder goes on the flash bracket and holds the flash in place. It works great, and I know that the flash isn't going to fall out or come loose.

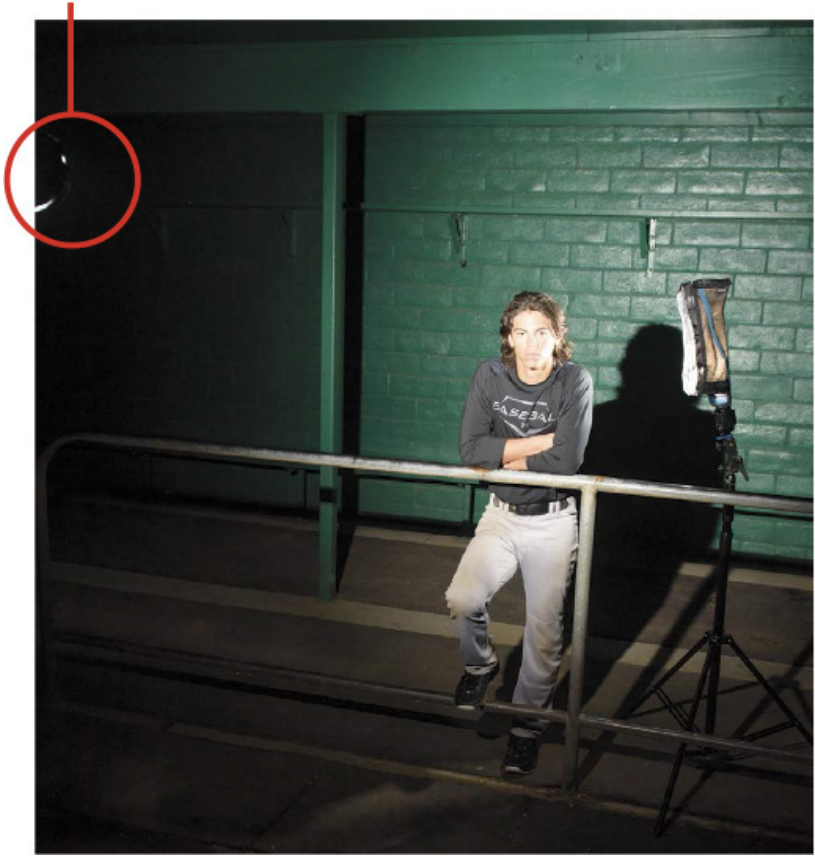


**Figure 17.9** The gear for this photo included the Rogue FlashBender 2 XL and the strip grid in their handy supplied bag.

## Setup

The setup for this photo of Sam in the dugout consisted of a single SB-800 with a Rogue Grid aimed directly at his face with the SB-910 and the FlashBender 2 XL Pro with the strip grid off to the side of his face. I chose these light modifiers because both control the spread of the light, allowing me control over what gets lit and what doesn't. In [Figure 17.10](#) you can see both lights set up in relationship to Sam.

## SB-800 WITH ROGUE GRID



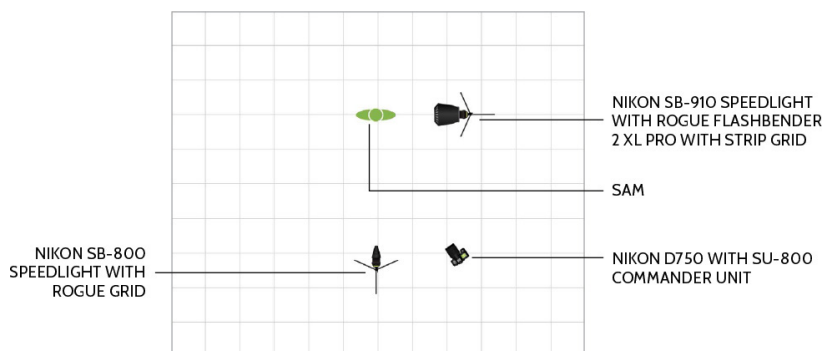
**Figure 17.10** The two lights were arranged to illuminate Sam but keep the light off the surroundings.

The SB-910 with the FlashBender 2 XL Pro with the strip grid was placed really close to Sam, just out of the frame when taking the portrait. The distance of the light from the subject softens the light but also controls the spread of the light ( [Figure 17.11](#) ).



**Figure 17.11** Here you can see the distance of the light to the subject. It is as close to the subject as possible without being in the frame.

This is not a complicated setup, but because both the lights are pretty tight and have little spill to the sides, you need to keep the subject in place while aiming each light. If the subject moves, even a little bit, then the lights will need to be adjusted. **Figure 17.12** provides the lighting diagram.



**Figure 17.12** The lighting diagram is basic, but you can change the amount of light spill by changing the grid in the Rogue Grid.

## Final Images

The final two portraits of Sam were taken with the same settings, with the only difference being the slight change in the pose, the focal length, and the distance from the camera to the subject. The

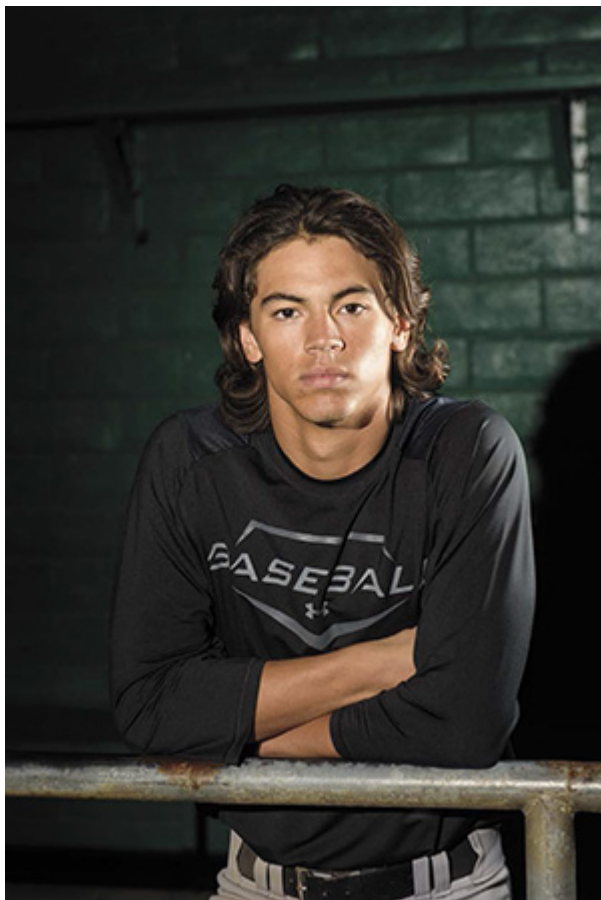
advantage of the Nikon Advanced Wireless Lighting is that you can control the remote lights from the camera, so once they are set up, you can concentrate on talking to the subject from the camera position.

For [Figures 17.13](#) and [17.14](#) , I set both remote Speedlights to channel 1, assigning the SB-800 set to group A and the SB-910 set to group B. I set the camera to Manual mode with 1/125 second, f/5.0, and ISO 400 with the flash mode of group A set to Manual at 1/2 power and flash mode of group B set to Manual with 1/8 power.



NIKON D750 ISO 400 1/125 SEC. F/5.0

**Figure 17.13** For this shot of Sam, I stayed a little further back and used a 60mm focal length. You can see how the light drops off at the edges of the photos. This is because of the grid on the main light.



NIKON D750 ISO 400 1/125 SEC. F/5.0

**Figure 17.14** With the light unchanged, I moved in tighter and changed the focal length to 70mm. You can still see some of the light falloff on the edges of the frame, but now you can also see the hard shadow on the back wall created but the hard front light.

## Kids

In the previous two chapters, I photographed the kids playing a board game in the living room, but kids also spend time playing on the computer—the perfect opportunity to have some fun with an off-camera flash. This time, I used it to mimic the light coming off a computer screen. Specifically, I used a single Speedlight to bounce the light off the computer screen and a second light to illuminate the whole scene; then just for fun I added a third light to change the color of the laptop.

## Gear

The gear for this shoot included three flashes, a softbox, and a piece of white paper. Although the most low-tech of the equipment, the white paper played the vital role of creating the bounce surface on the computer screen. Here's the complete gear list:

- **Nikon D750** : The Nikon D750 lets me trigger the off-camera flashes in two groups: A and B. For this shoot, I started by using one of the SB-910 Speedlights as a Commander for the other two off-camera flashes; then when I wanted a third off-camera flash, I used the built-in flash as a Commander.
- **Nikkor 24–70mm f/2.8** : Because of space limitations, I needed to use a wider-angle lens, and this was my preference. You can use any lens for this type of shot.
- **Nikon SB-700 Speedlight** : I used the SB-700 as the light in the softbox. Any Speedlight in Remote mode will work.
- **Two Nikon SB-910 Speedlights** : I used two SB-910s when taking these photos. I placed the first in the supplied flash stand and set it on the keyboard of the computer to act as the main light. I used the second SB-910 first as my on-camera trigger and then removed it from the camera to become another light source in the final image.
- **Nikon SB-910 Diffusion Dome SW-13H** : The diffusion dome that comes with the SB-910 worked to diffuse the light from the flash placed on the computer. I wanted the light to spread around, because it needed to cover two kids.
- **Westcott Rapid Box** : The softbox added ambient light to the scene.
- **Light stand** : I needed a light stand to hold the softbox in place.
- **Justin clamp** : When I added the third light to the scene, I needed a way to position it, and the Justin clamp allowed me to attach and position the light off to the side of the computer.
- **Colored gels** : The Rogue gels allowed me to change the color of the light of the third flash for the final image.

**Figure 17.15** illustrates the gear (minus the plain white piece of paper). Bouncing a light off the computer screen is a really great lighting technique.





**Figure 17.15** Here's the gear I used for this shoot. You can use the Speedlights either as remotes or as a controller.

## Setup

The setup for this glowing-screen photo is simple and effective. Place the main flash behind the computer screen and aim it at a piece of white paper on the screen. The light bounces off the screen and illuminates the faces of the people looking at the computer. In [Figure 17.16](#), you can see I placed the SB-910 on the keyboard and aimed it at the screen. The white piece of paper is just leaned against the screen, turning it into a bounce card.



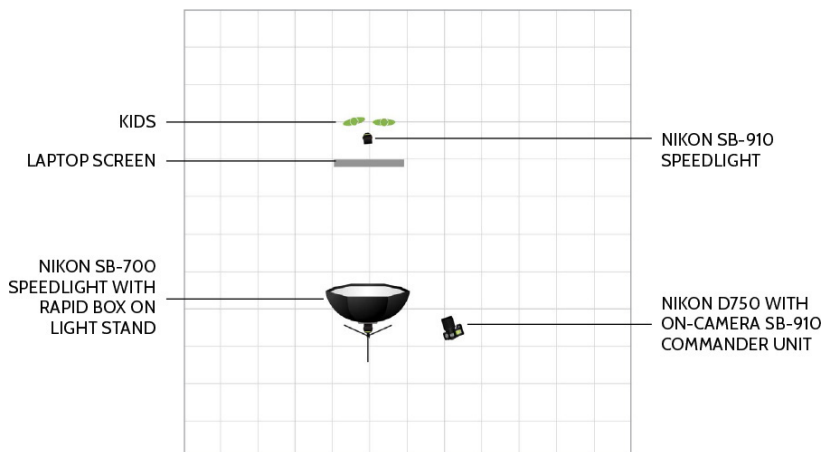
**Figure 17.16** The SB-910 rests on the flash stand that comes with it, and the diffusion dome is over the head of the flash.

The second light in the scene was the Westcott Rapid Box placed on the light stand in front of the computer and aimed down at the computer and counter. This light was used to light up the overall scene. You can see the placement of the light in [Figure 17.17](#) .



**Figure 17.17** The SB-700 is mounted in the Westcott Rapid Box and placed in front of the laptop adding overall illumination to the scene.

The lighting diagram shows the placement of the lights and the camera ( [Figure 17.18](#) ). I did stand on a small stepstool to get the right angle over the laptop screen so that the remote flashes could see the signal from the Commander.



**Figure 17.18** The lighting diagram shows the placement of the two lights and the camera.

## Final Image

For the final image, I set both remote flashes to channel 1 with the SB-910 in group A and the SB-700 in group B. I wanted the rest of the room to be dark, so I used camera settings that reduced the effect of the ambient light. A shutter speed of 1/250 second with an aperture of f/13 and an ISO of 200 meant that the only light affecting the scene would be from the two remote Speedlights.

On the SB-910 that was being used as a Commander unit, I set group A to Manual flash mode with a power of 1/32 and group B to Manual flash mode with a power of 1/8. Because the SB-910 (group A) was close to the subjects, it needed a lot less power than the SB-700 that was in the softbox used to light up the counter.

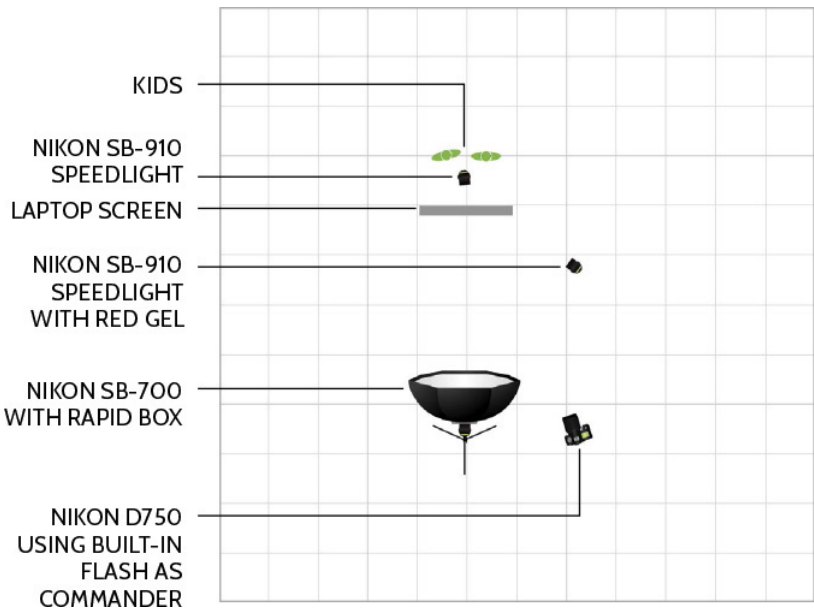
The advantage of having these two lights in different groups was that I could adjust them separately from the camera without disturbing the subject. For [Figure 17.19](#), I just waited until I saw the expression I wanted to capture and pressed the shutter release button.



NIKON D750 ISO 200 1/250 SEC. F/13

**Figure 17.19** The final image shows the kids playing with the computer, with the main light coming from the SB-910 that is bouncing the light off the white paper on the screen of the computer.

Just for fun, I took the SB-910 off the camera and changed it from Commander to Remote mode and then set it to channel 1 and group A. It now fired in the same mode and power as the SB-910 that was bouncing the light off the screen. I mounted the flash in a Justin clamp and placed it on the edge of the counter aimed at the back of the laptop screen. Then I added a red gel over the flash head and angled the flash to hit the back of the laptop and not the kids on the other side. I triggered the remote flashes with the built-in flash on the D750. **Figure 17.20** shows the lighting diagram for this, and **Figure 17.21** shows the final image.



**Figure 17.20** The lighting diagram shows the addition of the third Speedlight used to illuminate the back of the laptop and change its color to red.



NIKON D750 ISO 200 WITH RAPID BOX ON LIGHT STAND NIKON D750 WITH BUILT-IN FLASH 1/250 SEC. F/13

**Figure 17.21** Using a light to change the color of the laptop is just a little extra fun thing to try. Gelling the Speedlight and aiming it low kept the color on the laptop.

I photograph a lot of musicians, guitar players especially, and they are some of my favorite subjects. When using a single light source, you have to decide whether you are going to light up the musician *or* the instrument. With more than one light, however, you can illuminate both the musician *and* the instrument (or instruments).

## Gear

The gear for this shoot includes two different lenses because I used two different setups for two different types of shots. The first is Cody against a plain black background holding a single guitar, and the second is Cody surrounded by his instruments.

- **Nikon D4** : The Nikon D4 is a fantastic camera, but it does not have a built-in flash, so to trigger the off-camera units, I needed to use a Commander unit, such as the SU-800 or another of the Speedlights.
- **Nikkor 24–70mm f/2.8** : For the wide shot of Cody surrounded by his instruments, I used the 24–70mm lens because I needed a wider view.
- **Nikkor 70–200mm f/2.8** : The longer focal lengths work better when you need to minimize the background as I did in the photo of Cody with the single guitar.
- **Nikon SU-800 Commander unit** : The SU-800 is needed to trigger the remote Speedlights because the D4 does not have a built-in flash.
- **Nikon SB-800 Speedlight** : Even though the SB-800 is now discontinued, it is still a perfectly good flash.
- **Nikon SB-910 Speedlight** : Any Speedlight will work. I used a combination of the SB-800 and the SB-910 as the two off-camera flashes. The two flashes can be used in any combination. The only real difference is that the SB-910 is quite a bit bigger than the SB-800, as you can see in [Figure 17.22](#) .





**Figure 17.22** The gear for this shoot includes just the basics: an umbrella, a couple of flashes, and some light stands.

- **Umbrella** : I needed a light modifier to create a big, soft light to illuminate all the instruments, and the shoot-through umbrella fit the bill.
- **Light stands** : The light stands allowed me to position the two Speedlights off camera, but the light stands need a way for the flashes to be attached to them. That's what the umbrella holders are used for.
- **Two flash brackets/umbrella holders** : I used two umbrella holders, one for each flash. Only one of the flashes had an umbrella mounted, the other was a bare flash, but mounting it in the umbrella holder allowed me to adjust the downward angle of the Speedlight.
- **Black backdrop** : I really love bringing the collapsible background with me on a shoot. Having a quick solid white or black background anywhere at any time is really useful.

## Setup

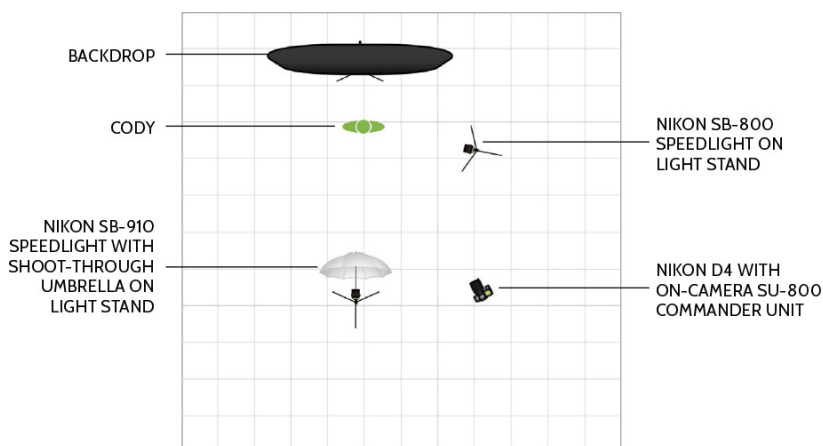
This chapter actually has two different setups for the photos of Cody. This first one builds on the [Chapter 16](#) portrait. In this case, I shot the SB-910 through an umbrella in the light stand to supply the main light. After I mounted the SB-800 on a second light stand using the second umbrella holder, I placed it close to and above the guitar headstock. I then aimed the light down to highlight the Taylor name on the guitar. I simply leaned the black backdrop up



against a wall behind Cody. You can see the setup shot and the lighting diagram in [Figures 17.23](#) and [17.24](#) .



**Figure 17.23** This setup shot shows the bare SB-800 in a light stand aimed at the headstock of the guitar.



**Figure 17.24** In the lighting diagram, you can see the position of the two flashes and the camera.

I used the same setup to take [Figures 17.25](#) and [17.26](#) . You can see that the headstocks of the guitars are both well-lit even though they are quite a distance from Cody's face. This extra bit of light makes the difference between something that is merely good and something that the guitar company will want to use. Both of the Speedlights were set to channel 1 with the SB-910 in the umbrella set to group A with the SB-800 set to group B. The camera is set to Manual exposure mode with 1/250, f/6.3, and ISO 100.



NIKON D4 ISO 100 1/250 SEC. F/6

**Figure 17.25** You can see that the light on the headstock is at a slightly different angle than the main light. There are no shadows under the bottom three strings on the headstock.



NIKON D4 ISO 100 1/250 SEC. F/6

**Figure 17.26** The Taylor logo on the guitar is lit by the SB-800. You can see a splash of light on the wood headstock, reflecting the SB-800 light.

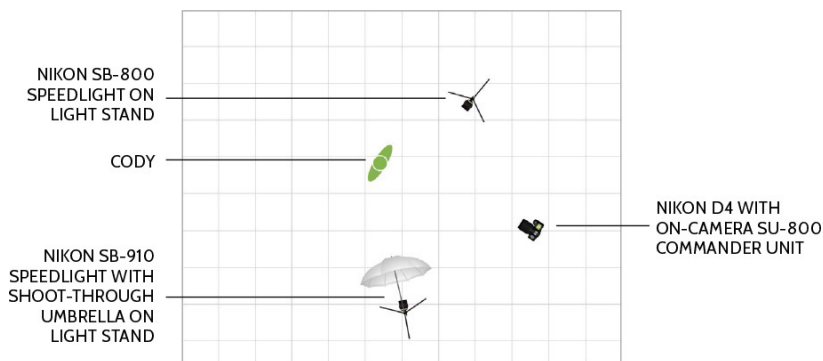
The flash modes for both A and B were set to Manual flash mode on the SU-800 with the power for group A set to 1/4 and the power for group B set to 1/16.

Switching to a portrait orientation made for a tighter composition but also meant that I needed to move the SB-800 in a little closer and make sure it was aimed right at the headstock of the guitar.

For the second shot of Cody, I wanted to surround him with his favorite instruments and then light the whole room. I did this by positioning Cody on the floor and placing the instruments all around him. I set the lights in the same manner as the previous shot, but angled the flashes down on Cody. You can see the light setup in [Figure 17.27](#) and the lighting diagram in [Figure 17.28](#) .



**Figure 17.27** You can see the two lights set up, the first with the shoot-through umbrella and the second with just a bare flash.



**Figure 17.28** The lighting diagram shows the position of the lights and camera. I wanted a big, soft light on the room and instruments with a harder light right on Cody.

## Final Images

**Figures 17.29** and **17.30** differ only slightly in their lighting. Both of the Speedlights were set to channel 1 with the SB-910 in the umbrella set to group A and the SB-800 set to group B. The camera was set to Manual exposure mode with 1/250, f/6.3, and ISO 100.



NIKON D4 ISO 200 1/200 SEC. F/7.1

**Figure 17.29** Cody Lovaas surrounded by his favorite instruments. The light from the umbrella is lighting up the whole scene with the SB-800 adding the harder light right on Cody.



NIKON D4 ISO 200 1/200 SEC. F/7.1

**Figure 17.30** Adjusting the power of the flashes from the camera allowed me to change the light without changing the scene.

I set the flash modes for both A and B Manual on the SU-800 and adjusted the power for group A to 1/16 and for group B to 1/4

power for the first shot. You can see the harder light from the bare flash head in the sharpness of the shadow created by Cody's nose in [Figure 17.29](#) . In [Figure 17.30](#) , I reduced the power of group B to 1/8 and increased the power to group A to 1/8. With the adjustment Cody made to his pose, the light on his face was evened out.

## Librarian

The final shot of the librarian took a second Speedlight to add some light so that the break in the bookshelf would be illuminated and act as a frame around the librarian. This is a more subtle effect, so just for fun I added a blue gel to the light so it would be overly obvious which light was coming from which flash.

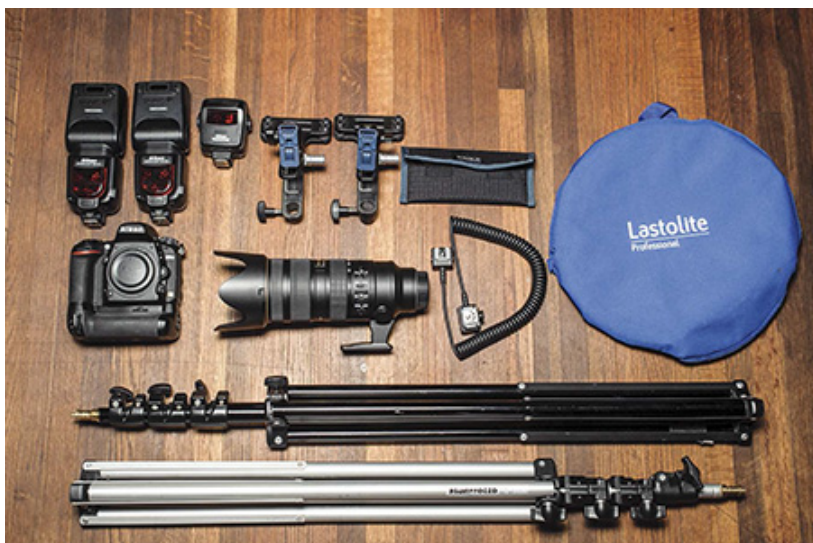
## Gear

This shoot added a second light stand and Justin clamp for the second Speedlight to the portrait's gear list ( [Figure 17.31](#) ). Using a Justin clamp on a light stand allows you to adjust the angle and position of the light easily. I also added a diffuser to go between the light coming through the bookshelf and the librarian. Because the distance between the flash head and the diffuser is small, the diffuser doesn't do a whole lot, but a little softening of the light is better than none.

- **Nikon D750** : Any camera will work for this image.
- **Nikkor 70–200mm f/2.8** : I needed the reach of the longer focal lengths to shoot right down the library stacks.
- **Two SB-910 Speedlights** : I used two SB-910 Speedlights to light up this photo. Any of the Speedlights that can act as a remote would work.
- **Nikon SU-800 Commander unit** : The remote flashes need to be triggered, and because of their placement, the built-in flash couldn't do it, so I used the SU-800. I could have used another Speedlight that has the ability to act as a Commander.
- **TTL cord** : The SU-800 needs to be able to send the trigger flash to the remote flashes, and it couldn't do that from the camera position, so I used the TTL cord to move the SU-800 off the camera and over to the second aisle.
- **Light stands** : I needed a way to position the SU-800 and the second Speedlight—lights stands to the rescue.



- **Justin clamps** : These clamps were used to position both the lights. The first one was clamped to a large book, while the second was placed on a light stand.
- **Gels** : I added a blue gel to the second light to show the spread of the light. I always have a pack of gels with me. They are small and take up little space but can add something great to a photo.
- **Lastolite Diffuser** : I added the diffuser to soften the light coming through the shelves. It didn't make a huge difference, but any amount of softening helped.
- **Rogue FlashBender** : I used the large FlashBender to bounce the light through the bookshelf.



**Figure 17.31** The gear used for this shoot (minus the Rogue FlashBender). The Lastolite diffuser collapses into a compact shape and easily stored in its bag.

## Setup

The two flash units were not far from the SU-800, but the angle made it impossible for the SU-800 to trigger the Speedlights from the camera position. The solution was to place the SU-800 in a TTL cord and attach the TTL cord to a light stand. You can see the TTL mounted on the light stand in [Figure 17.32](#) . The mounting hole in the bottom of the TTL cord allows the light stand to screw directly in it. The SU-800 can then be positioned away from the camera and moved so that the SB-910 Speedlights can be triggered. The one thing to watch for is pulling the light stand over by moving too



far away from it. I usually place my camera bag on the feet of the light stand to give it more stability.



**Figure 17.32** Here the SU-800 is mounted in the TTL cord, and the cord end is mounted on the light stand.

I set an SB-910 into the Justin clamp, which I in turn mounted on the light stand. I could then position the flash as I needed just by loosening the small ball head that connected the flash cold shoe to the body of the clamp. Once the flash was in the proper position, I just tightened the ball head to lock the position of the flash. In [Figure 17.33](#) you can see the built-in bounce card was pulled out and so was the wide-angle adapter. For the actual images, I left the wide-angle adapter in place because I need a wide spread of light, but I put the built-in bounce card away because it didn't do anything to the light.

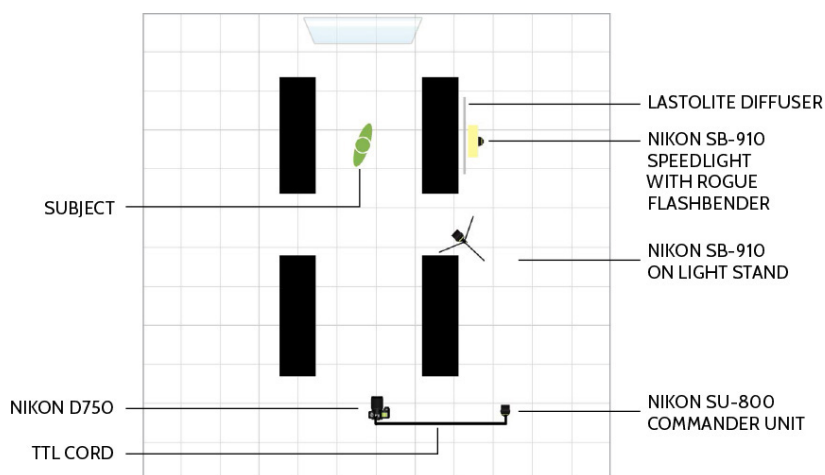


**Figure 17.33** I mounted the SB-910 in a Justin clamp attached to a light stand.

The final part of the setup was to add the Lastolite diffuser in front of the light that was blasting through the bookshelf. The SB-910 was positioned using a Justin clamp and a Rogue FlashBender to bounce the light. The diffuser was placed between the flash and the shelf to help soften the light. You can see the diffuser in position in [Figure 17.34](#) and the lighting diagram for the shoot in [Figure 17.35](#) .



**Figure 17.34** This time the SB-910 is mounted in a Justin clamp and positioned on the bookshelf. The Rogue FlashBender bounces the light through the shelf, while the Lastolite diffuser is positioned to soften the light as much as possible before going through the shelf.



**Figure 17.35** The lighting diagram shows the placement of the two flash units and the SU-800. The SU-800 is connected to the

camera via a TTL cord.

## Final Images

The final images were first taken with a blue gel on the second flash. This allowed me to see exactly where the light from the second flash was impacting the scene. You can see what that looks like in [Figure 17.36](#) where the blue light is illuminating the bookshelf ends. For [Figure 17.37](#) , I removed the blue gel and moved the angle of the light upward so that the light would strike the bookshelf ends creating a frame around the librarian.



NIKON D4 ISO 800 1/60 SEC. F/5.6

**Figure 17.36** You can see the blue light on the walls and floor of the library stack. This was a great way to see what the position of the light was actually doing.



NIKON D4 ISO 800 1/60 SEC. F/5.6

**Figure 17.37** The final image of my wife, the librarian, working in the library stacks. The main light is illuminating her face and arms, while the second light is illuminating the ends of the bookshelves acting as a frame within the image.

Both of the Speedlights were set to channel 1 with the SB-910 that shines through the bookshelf as group A and the second light as group B. The camera was set to Manual mode, 1/250 second, f/9.0,



and ISO 400. The Speedlights were set to TTL mode with A at +1 power and B at 0.

## **Final Thoughts**

Using multiple lights is a lot of fun. Being able to do it on location is even more fun. I know that most photographers, especially those starting out, don't have a whole bag full of Speedlights, which is why I have limited the number of off-camera flashes in this chapter. It is easy to get carried away and create complicated light setups using 4, 5, 60, or more Speedlights, but it is important to build up that light methodically and to keep thinking in terms of the three groups of lights: A, B, and C.

## 18. Speedlights Used for Action



NIKON D4 ISO 100 1/250 SEC. F/4.5

Capturing action photos is usually accomplished using the available light with fast shutter speeds, high ISOs, and wide apertures—but it doesn't have to be. For this chapter, I caught the action using Speedlights to create a more dramatic portrait. One of the basic techniques I used for all the photos was to underexpose the whole image and then add back in the light on the subject, keeping the background more dramatic. The other thing that I tried to do on all the images was to shoot from a low angle up at the athletes because this makes them look larger than life.

### Golf Swing

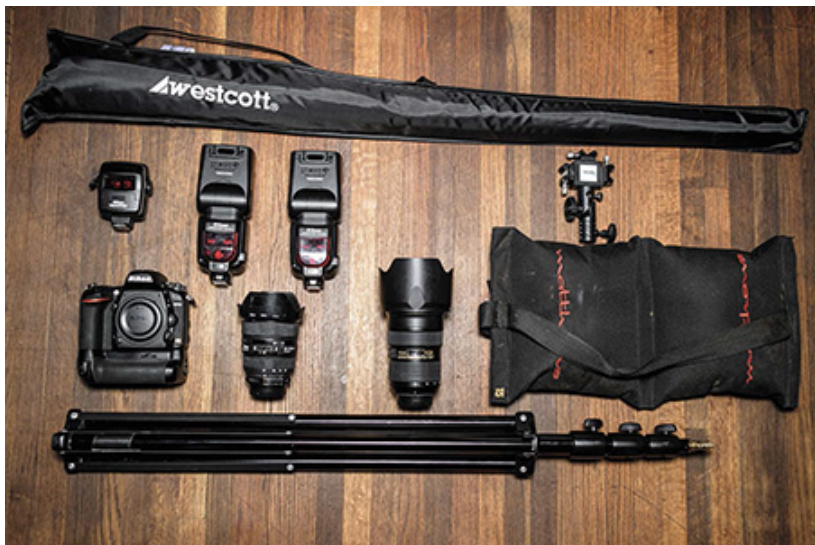
A golfer practicing his swing is a great subject because he will repeat the same motion over and over again. In addition, golf courses are beautiful places with trees and green lawns—perfect for taking an action portrait.

### Equipment

The equipment for this shoot was minimal: a camera and lens along with a large umbrella and a couple of Speedlights ( [Figure 18.1](#) ). I used the Westcott 7-foot parabolic umbrella, which is really big and quite deep, to create a big, soft light source. Here's the complete list:



- **Nikon D750** : Any of the Nikon DSLR cameras could work here, and I could have used the built-in flash to trigger the remote Speedlights.
- **Nikkor 24–70mm f/2.4** : I started the shoot with the 24–70mm lens to capture a medium shot of the golfer, but after a few frames, I switched to a wider angle to capture more of the scene.
- **Nikkor 20–35mm f/2.4** : When I went to a wider angle, I used the widest angle lens I had: the 20–35mm at the 20mm focal length. I loved the way the light from the umbrella lit up the golfer and the ground around him, creating a natural vignette.
- **Two Nikon SB-910 Speedlights** : The large umbrella that I used for this shoot needs some serious light bounced into it, so I used two SB-910 Speedlights mounted in the umbrella.
- **Nikon SU-800 Commander unit** : I used the SU-800 Commander unit to trigger the two remote SB-910 Speedlights.
- **Lasolite McNally TriGrip** : This piece of gear allows you to mount up to three Speedlights together and to rotate the Speedlights so that the sensors used to trigger the off-camera flashes can be positioned properly.
- **Westcott 7-foot parabolic umbrella** : This is a great light-shaping tool, creating a very soft light. The version I have has the silver interior designed for the light to be bounced into and then out of the umbrella. You need quite a bit of light going into the umbrella, which is why I used it with the McNally TriGrip and two SB-910 Speedlights.
- **Light stands** : I used a heavy-duty light stand to hold the umbrella and TriGrip in place.
- **Sandbag** : The umbrella is big—really big—so I wanted to make sure that any breeze that popped up at the scene wouldn't knock it over. A 15-pound sandbag on the legs of the light stand kept it nice and secure.



**Figure 18.1** The gear used for this shoot was really quite minimal with just two Speedlights mounted in the big umbrella.

The McNally TriGrip allowed me to mount two SB-910 Speedlights and then rotate them in the holder so that the sensors faced the right direction. You can see the way the two Speedlights were positioned in [Figure 18.2](#) .



**Figure 18.2** The advantage of the McNally TriGrip is that the two Speedlights can be rotated so that the sensors used to trigger them in Remote mode can see the signal from the SU-800.

## Setup

The setup for the golf shot was probably the easiest setup of all the photos because it is just a big umbrella pointed at the golfer. The two Speedlights were mounted in the umbrella and were both set to channel 1 and group A. Then I sat and watched the golfer, Josh, practice his swing so I could work out the best place from which to photograph. I wanted to make sure that we kept the setting sun behind him and that I was not going to get smacked in the head by a golf ball or a club. In [Figure 18.3](#), you can see the position of the umbrella and camera in relationship to Josh. I ended up lying on the ground and shooting at a slight upward angle; Josh got to look larger than life, and I got a great angle on the swing.



**Figure 18.3** The Westcott 7-foot parabolic umbrella is in position with two SB-910 Speedlights mounted inside.

The next step was to set the camera to capture the ambient light without the flash going off. I wanted the scene to be dark so that the main light illuminating the swing would be from the two Speedlights in the umbrella. I set the camera to Manual exposure mode, 1/250 second, f/7.1, and ISO 200 and to create the silhouette of Josh shown in [Figure 18.4](#).



NIKON D750 ISO 200 1/250 SEC. F/7.1

**Figure 18.4** Without the Speedlights firing, Josh is just a silhouette against the sky.

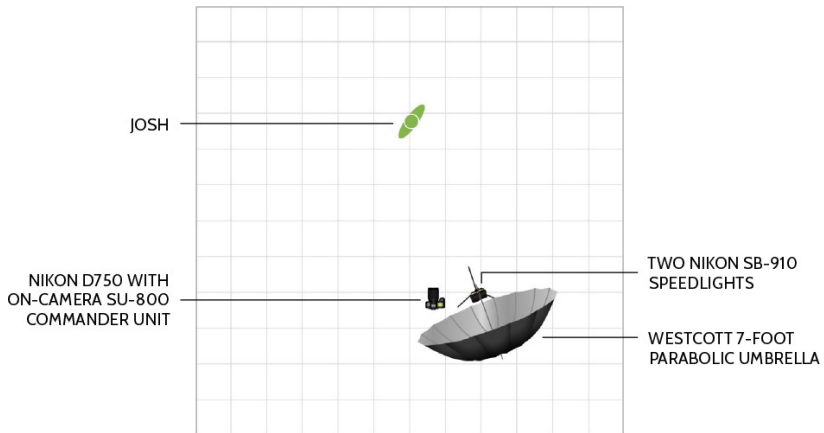
Then, it was just a matter of turning on the SU-800 and the two SB-910 Speedlights and setting the power of the remote flashes on the Commander unit. After some experimentation, a 1/2-power setting worked to capture the scene, as you can see in [Figure 18.5](#). The lighting diagram for the photo appears in [Figure 18.6](#).



NIKON D750 ISO 200 1/250 SEC. F/7.1

**Figure 18.5** Josh posed before taking a swing. This helped me set up the lighting so I didn't have to worry about both the

timing and the lighting all at once.



**Figure 18.6** The lighting diagram for the shoot reflects the simple setup for this photo.

## Final Images

With the light and camera all set up, the final piece of the puzzle was to get the timing down to capture the actual swing. Because the Speedlights need time to recycle, I could fire only one flash per golf swing. The easiest way to get the timing right was to talk to Josh as he practiced his swing. He counted out loud as he started his swing, which helped me know when to press the shutter release button. On the first try with an actual golf ball on the tee, I managed to capture both the swing and the golf ball in flight ( [Figure 18.7](#) ).



NIKON D750 ISO 200 1/250 SEC. F/7.1

**Figure 18.7** Getting the timing right allowed me to capture the ball in midair as it left the club head.

**Figure 18.8**, the final shot of Josh, shows the follow-through of the golf swing. The wide-angle lens allowed the light from the umbrella to create a natural vignette. Getting set up early was important in achieving this shot. The sun was rapidly setting, and a few minutes after this last shot was taken, all traces of the sunlight were gone.



NIKON D750 ISO 200 1/250 SEC. F/7.1

**Figure 18.8** The final shot vignettes Josh's golf swing amid the gathering dusk.

## Soccer Kick

Soccer is the most popular sport in the world. For this photo, I had the fortune of being able to photograph Emma, who will play college soccer this year. The concept was to capture her kicking the ball and light the scene with a couple of Speedlights.

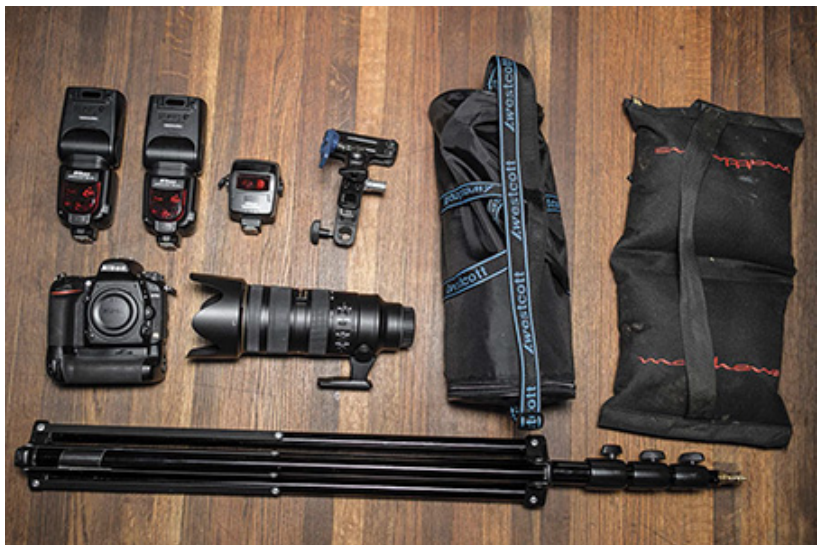
## Equipment

The equipment used for this photo included two Speedlights that I wanted mounted so that all the light looked like it was coming from the same source. To do this, I mounted the second Speedlight in a Justin clamp and attached it to the light stand below the first light. **Figure 18.9** and the following list detail all the gear for this shot:



- **Nikon D750** : I used the Nikon D750 DSLR for this photo but could have used any of the Nikon DSLRs.
- **Nikkor 70–200mm f/2.8** : I needed to compress the scene and minimize the background, because I wanted just the soccer player and the floodlights in the background. The longer focal length allowed me to do that and stay back a safe distance.
- **Two Nikon SB-910 Speedlights** : I used two Speedlights in Remote mode. It could have been any of the Nikon Speedlights.
- **Nikon SU-800 Commander unit** : I used the SU-800 Commander to trigger the off-camera flashes because I find it the easiest to work with when time is a factor, and for this photo I had only a few minutes when the floodlights would be on and the sky was still light enough to have some detail.
- **Westcott Rapid Box Strip** : I wanted a slightly softer light on the face and upper torso of the soccer player, and the Rapid Box Strip was perfect for this.
- **Light stand** : I used a single light stand with the softbox mounted to the top and the second flash attached using the Justin clamp halfway up the stand.
- **Justin clamp** : The clamp was used to position the second flash on the light stand.
- **Sandbag** : I used a 15-pound sandbag on the leg of the light stand to make sure it didn't fall over with the softbox and Justin clamp attached.





**Figure 18.9** Here's the gear used for the soccer kick photo, including the sandbag that held the light stand in place.

## Setup

The first SB-910 was mounted in the Westcott Rapid Box Strip and attached to the top of the light stand using the mounting bracket that comes with the softbox. This Speedlight was set to Remote mode, channel 1, and group A. I mounted the second Speedlight in the Justin clamp and then clamped it to the light stand below the softbox. This second flash was set to Remote mode using channel 1 and group B. You can see the placement of the two Speedlights in [Figure 18.10](#) .



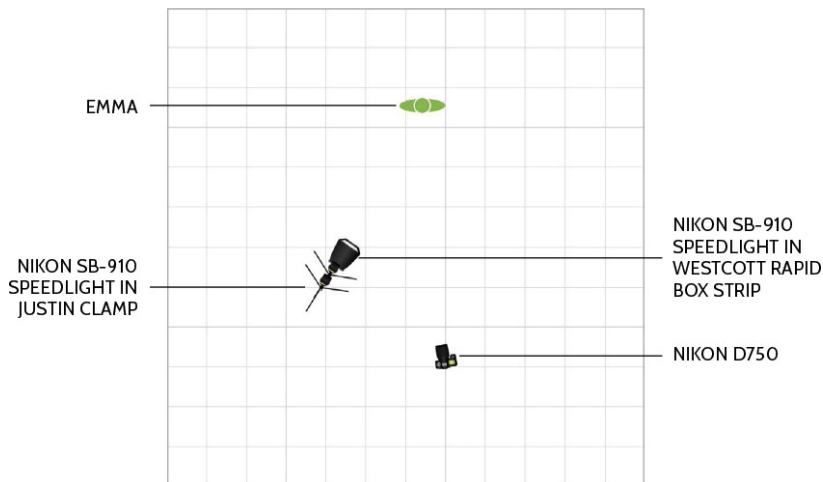
**Figure 18.10** I mounted the two Speedlights on the same light stand, setting the top light as group A and the bottom light as group B.

The next step was to set up the lights in relation to where Emma would be kicking the ball. To do this, I need to place the ball in the right spot and then adjust the aim of the Speedlights. As you can see in [Figure 18.11](#), I aimed the softbox at the soccer player's head and then positioned the lower light to light up the ball in flight. The one great thing about working with athletes is that they can repeat an action over and over again and it looks the same each time. This allowed me to fine-tune the position of the lights and not have to worry that the ball was going to hit me. (Her dad played goalie behind me, and although the kick looks strong, she was just tapping it over my head.)



**Figure 18.11** You can see the setup of the two lights in relation to Emma. Note the slight downward angle of the lower Speedlight so that the harder light would hit the ball and the ground but not her.

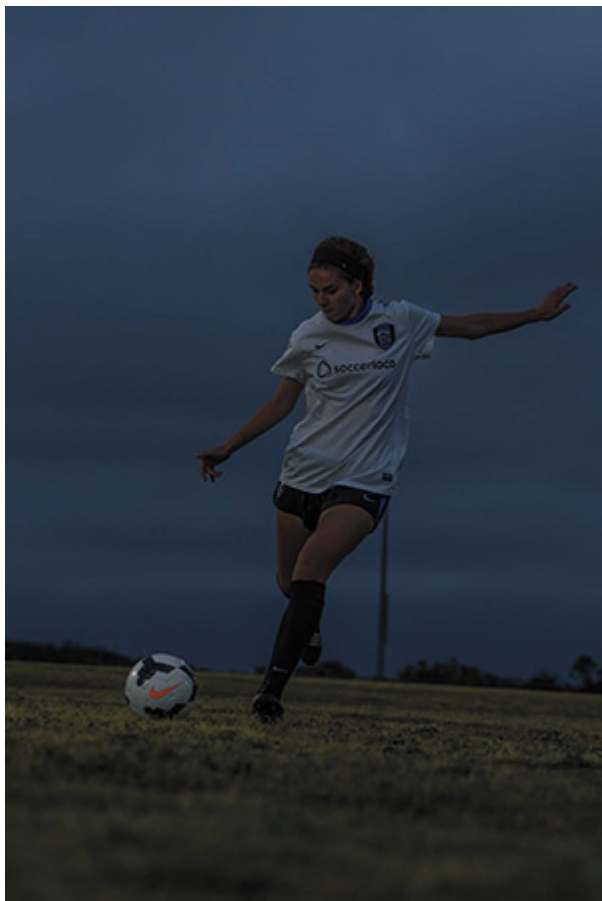
**Figure 18.12** is the lighting diagram for this photo shoot, but keep in mind that the two flashes are set up with one in the softbox above the other one. I wanted it look like one light source, and using the Justin clamp allowed me to do that.



**Figure 18.12** The lighting diagram shows the position of the two Speedlights. I adjusted the shooting position to include the floodlights in the background.

You can see the ambient light present before the Speedlights were added to the mix in **Figure 18.13** . This was shot at a 1/1000-

second shutter speed at f/3.5 using ISO 400. The scene was underexposed so that when I added the lights, the sky would stay the same and the light would illuminate the player and ideally the ball in the air.



NIKON D750 ISO 400 1/1000 SEC. F/3.5

**Figure 18.13** Emma's practice kick without the Speedlights turned on allowed me to make sure the background light was how I wanted it.

## Final Images

The final image of Emma kicking the soccer ball took some practice, a lot of timing, and a little luck. The field we were shooting on had some floodlights in the background; they came on just before sunset but wouldn't be on for long as the area closed after dark. I had Emma take a few practice kicks ( [Figure 18.14](#) ) so that I could work on the timing. Because I needed to freeze the kick and the ball, I used a very fast, 1/1000-second shutter speed;

therefore, the flashes needed a lot of power to fire in the High-Speed Sync mode. This meant I got one exposure per kick and needed to press the shutter button right after the ball left her foot.



NIKON D750 ISO 400 1/1000 SEC. F/3.5

**Figure 18.14** Having Emma perform a few practice kicks allowed me to focus on my position and make sure that the floodlights in the background would be where I wanted them.

It took about three tries to get the final image, which has the soccer ball in the air, a great look of determination on Emma's face, and the floodlights over her shoulder ( [Figure 18.15](#) ). The lighting plan for the shot was to have the group A Speedlight (in the softbox) set to Manual power at 1/1 (full power) and the group B Speedlight set to Manual power at 1/2. For the final images, I raised the light stand as high as possible with both Speedlights angled down at the scene.



NIKON D750 ISO 400 1/1000 SEC. F/3.5

**Figure 18.15** Emma kicks the soccer ball between the lights and the camera position. It's a good thing she can kick the ball consistently in the same spot, because it allowed me to adjust the lights to illuminate the action

## Bike Rider

I have lots of friends who are into mountain biking and ride just



about every weekend. It is not only a fun pastime but a really great subject for sports action shots. The challenge for this shoot was to do it with as little gear as possible and still get a more dramatic light on the rider riding the trail. My friend Andy joined me on some local trails where we came up with two spots to shoot that would both give us some interesting photos and, more importantly, keep everyone on the trail safe.

## Equipment

The gear for this shoot was the absolute minimum, consisting of a single off-camera flash, a clamp, and a light stand. The reasons for this were twofold: I wanted a hard light, so the bare SB-910 was perfect, and I needed to carry the gear up and down a narrow track, so the less gear, the better. Here's the load I carried ( [Figure 18.16](#) ):

- **Nikon D750** : I used the D750 because it has a built-in flash that can be used as a Commander to trigger an off-camera Speedlight.
- **Nikkor 70–200mm f/2.8** : I wanted to compress the background as much as possible, so a longer zoom lens was my pick.
- **Nikon SB-910 Speedlight** : I needed one off-camera flash and picked the SB-910. I could have used any of the Speedlights for this as long as they could be set to Remote mode.
- **Justin clamp** : I needed to position the SB-910 to illuminate the rider, and the best way to do that was with the highly adjustable Justin clamp.
- **Light stand** : I could have clamped the Speedlight to a tree or a branch but took a single light stand with me in case I found a spot with uncooperative foliage and ended up using it for both shots. It isn't that big, and because I had such a small amount of gear, I could just pack it right on the backpack.
- **Think Tank Photo Shape Shifter backpack** : I used my camera bag to pack the camera, lens, flash, clamp, and light stand because I did not know how far I was going to have to walk to get to a good spot to shoot. This setup allowed me to not have to worry about extra pieces of gear on the trail.





**Figure 18.16** The small amount of gear meant that everything could be packed into a Think Tank Photo Shape Shifter backpack ([www.thinktankphoto.com](http://www.thinktankphoto.com)) with the light stand attached in the same way a tripod would be.

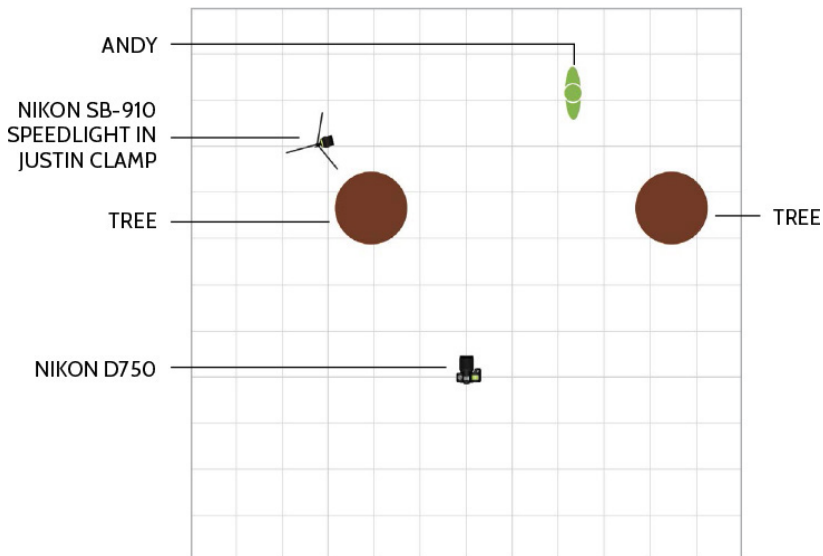
The advantage to using a small kit of gear is that setting up is easy. I was able to carry the gear into the trails and set up the light stand in a spot that was going to give me the lighting I wanted and, more importantly, keep the bike rider safe. Because I used only a single light, I could make sure that it in a spot that wasn't going to interfere with the trail.

## Setup

The small amount of gear allowed me to move fast and take two different shots along the same trail. The setup for both shots was similar: a single SB-910 in a Justin clamp on a light stand allowing me to aim the light where I needed it. The SB-910 was set to Remote mode, channel 1, and group A with the remote sensor on the side of the flash pointed back at the camera ( **Figure 18.17** ). For the first shot, the Speedlight was hidden behind the tree and aimed back up the trail that Andy would be riding down. I positioned myself so that the two trees would act as a natural frame, tracked Andy through the viewfinder, and took the photo as he passed the first tree. **Figure 18.18** shows the lighting diagram.



**Figure 18.17** I attached the SB-910 on the light stand with a Justin clamp and placed it behind the tree with the sensor aimed back at camera position.



**Figure 18.18** The lighting diagram shows the placement of the

SB-910 in relationship to the trees and the camera. It's important that the SB-910 is placed where the built-in flash on the Nikon D750 can trigger it.

With the camera in Manual mode, I used a shutter speed of 1/1600 to freeze Andy on the bike and to underexpose the scene. The light from the flash then acted as a fill light, blasting right into the rider, as shown in [Figure 18.19](#) .



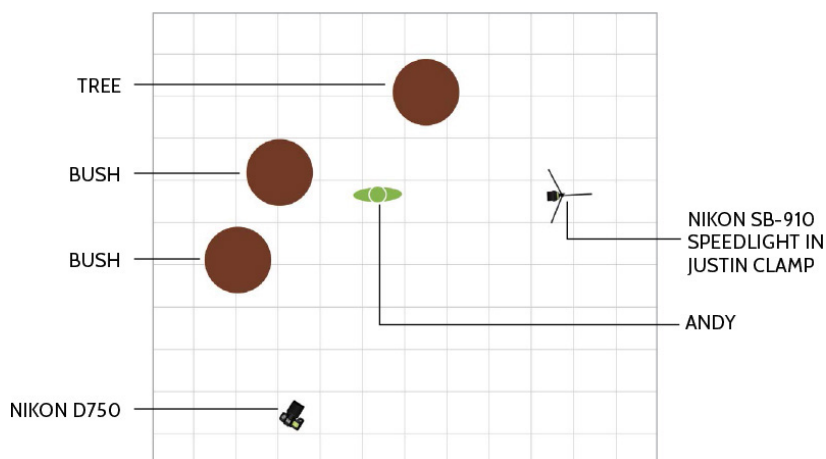
NIKON D750 ISO 500 1/1600 SEC. F/2.8

**Figure 18.19** It took a few tries to get the timing just right and focus on Andy as he came past the tree. Because the flash was firing on full power, I had only one chance each time Andy came by get the shot.

With the same gear, we moved a little way down the trail and came to a spot where I could safely set up a light and trigger it from farther down the trail, allowing me to capture Andy as he crested the small hill. In [Figure 18.20](#) , you can see the light setup, and in [Figure 18.21](#) , you see the lighting diagram.



**Figure 18.20** This time I positioned the single SB-910 (attached to a light stand with a Justin clamp) close to the peak of the small hill.



**Figure 18.21** The lighting diagram shows the position of the rider and the light. The hardest part of this arrangement was making sure that the SB-910 could see the D750 from the shooting position.

## Final Images

For the final image, I had Andy first stop on the top of the small hill to check the light and focus ( [Figure 18.22](#) ). The real test was if the built-in flash would be able to trigger the remote flash from the position where I was shooting. I set the SB-910 to Remote mode on channel 1 and group A, and I used the built-in flash on



the D750 in Commander mode with the flash power set to Manual and the power set to 1/1. For [Figure 18.23](#), I turned the camera to a portrait orientation with the built-in flash on the right so that it would still trigger the remote Speedlight; then I had Andy come riding over the crest and down the trail. The tricky part was making sure I got out of the way after taking the photo. The SB-910 was zoomed to 200mm, making for a tight beam of hard light that mimicked the setting sun.



NIKON D750 ISO 400 1/200 SEC. F/2.8

**Figure 18.22** Andy in position at the top of the trail allowed me to set up and test fire the light.



NIKON D750 ISO 400 1/200 SEC. F/2.8

**Figure 18.23** Here's the final shot of Andy in action as he came down the trail. The SB-910 was positioned off to the camera's right and zoomed to 200mm.

## Karate Kick

The idea for this image grew over time and went through a couple versions before I settled on the one in this chapter. The shot uses

the short duration of the flash to freeze the snap kick, and at the same time creates something powerful and dynamic. This is a combination of a straight portrait setup combined with the action of the kick.

I built the shot up layer by layer with three separate zones of light all adding to the overall effect. The main light would illuminate the leg and foot, I needed sidelighting to separate Tim from the background, and I wanted to throw a colored gel on the background to give the image a little pop (plus I thought it would look cool).

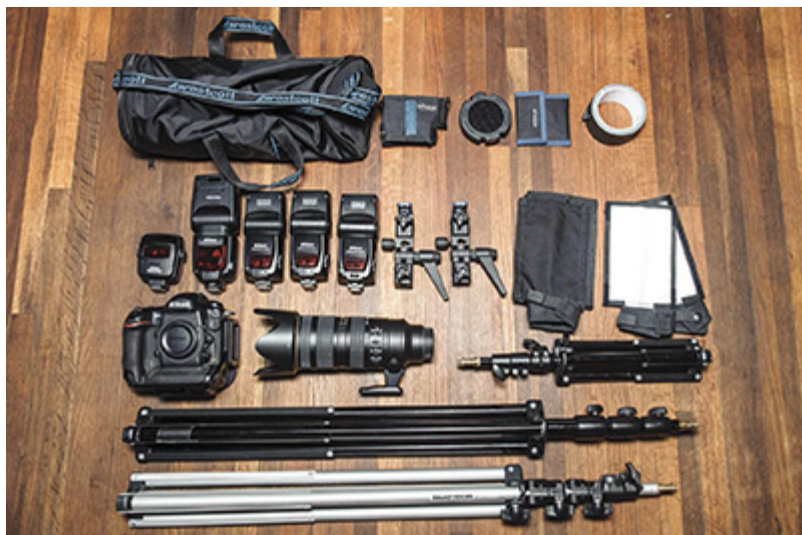
## Equipment

The gear for this shot was quite expensive; I used four Speedlights and the SU-800, along with the camera and lens. Plus, I needed light stands, modifiers, a boom, a background, and assorted grid and gels ( [Figure 18.24](#) ). Here's the complete shopping list:

- **Nikon D4** : I used my Nikon D4 for this image, but any camera would work.
- **Nikkor 70–200mm f/2.8** : I picked the longer focal lengths and shot from further away to minimize the amount of the background seen in the photo.
- **Four Nikon Speedlights** : I used a total of four Speedlights: a single SB-910 and three SB-800s. I divided the Speedlights into three groups. Group A was for the front light, group B for the sidelights, and group C for the background light.
- **Nikon SU-800 Commander unit** : I needed a way to trigger the three groups. I could have used another SB-900, SB-910, or SB-800, but I could not use the built-in flash (if the D4 had one), because I needed to trigger three different groups of lights. The SU-800 was the best tool for this job.
- **Westcott Rapid Box Octa, 26-inch** : The light that was illuminating the foot and leg needed to be softened and controlled, so I used the Westcott Rapid Box Octa and attached it to the boom to position it up high and angled down.
- **Rogue Grid** : Controlling the the spill of background light needed a grid or a snoot, and in this case, the Rough Grid just worked better.
- **Rogue Flags** : I used these to control the spill of the sidelights in conjunction with the small FlashBenders.



- **Rogue FlashBenders** : I used two of these in conjunction with the Rogue FlashBender flags to create a barn-door effect to control the spill of light on the sidelights. Doing so allowed me to blast Tim with light from the sides and not worry about the light lighting up other items in the frame.
- **Light stands** : I needed a way to hold all these lights in place, so I set up four light stands, one for each light.
- **Flash brackets/umbrella holders** : I didn't use any umbrellas for this image, but I did use the umbrella holders to mount the flashes on the light stands, which enabled me to adjust their angles.
- **Boom** : To position the light up high, I used a boom that allowed me to get the light in close without the light stand being in the photo.
- **Black seamless paper** : I created the solid black background using a roll of seamless black paper and the backdrop support kit.
- **Backdrop support kit** : This kit consists of two heavy-duty light stands and a set of metal rods that combine to hold a roll of seamless paper behind the subject.
- **Gaffer tape** : A roll of black gaffer tape is always important to have on hand. This time, I used small pieces to modify the light on the sidelights to control the spill of the light around the FlashBenders.
- **Gels** : The gels were used to change the color of the background light. In this case, I used a red gel.



**Figure 18.24** I used a lot of gear for this shot. This figure illustrates most of it, but the background stand kit, seamless paper, and boom were just too big to fit. This is the most gear used for any one shot in this book.

## Setup

This image was shot in my living room, which gave me the greatest amount of space to move and work. It did require some time and moving of furniture, but it was worth it. The basic idea was to get a photo of Tim in mid-kick with a light on his foot, some dramatic sidelighting, and then a red glow on the background. This idea came about during a test shoot where we had a just a couple of lights, and although the test looked good ( [Figure 18.25](#) ), it didn't have the pop that I wanted from the photo.



NIKON D4 ISO 200 1/250 SEC. F/8.0

**Figure 18.25** Tim in mid-kick in my living room illuminated by two lights. It's a good shot, but I wasn't happy with the final results because I cut off his foot and he didn't pop off the background.

I started from scratch with more Speedlights and a plan to build the light from the background to the foreground. The first step was to divide the Speedlights into groups. All the flashes were set to Remote mode and channel 1 with one of the SB-800s set to group C for the background and the other two SB-800s set to group B for the two sidelights. The SB-910 was set to group A and would be the front light in the softbox on the boom.

I positioned the group C SB-800 close to the backdrop with a Rogue Grid and red gel on it. You can see the result in [Figure 18.26](#) ; when the SB-800 fires, the red gel creates a red area on the backdrop.



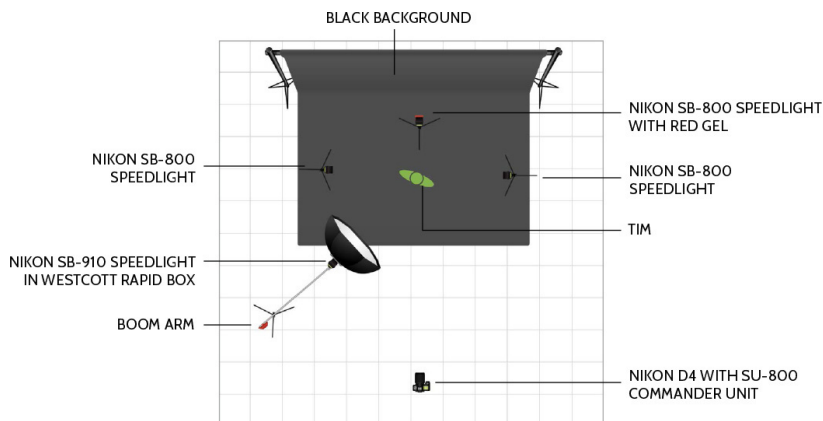
**Figure 18.26** The SB-800 with the Rogue Grid and red gel created the background red area on the black seamless paper.

I then positioned the two sidelights on either side of where Tim would be standing and used some of the Rogue FlashBenders and the Rogue Flags to control the spill of the light. You can see in [Figure 18.27](#) how I positioned the light modifiers on each of the sidelights. Using the two modifiers per flash allowed me to create a barn-door type of modifier stopping the spill of light from reaching the background or the camera.



**Figure 18.27** I used both the Rogue Small FlashBender and the Rogue Flag with the SB-800.

The last light to be set up was the group A SB-910, which I placed in the Westcott Rapid Box and mounted on the boom. The boom allowed me to place the light up high and angled at the spot where Tim's foot would be when in mid-kick. You can see the lighting diagram showing the placement of the lights in [Figure 18.28](#) . The final step was to adjust the power of the three lighting groups to get the final image.



**Figure 18.28** This is the most complicated setup in the chapter with multiple Speedlights in three groups. My strategy was to get the background lights in position and then build the side and front lights.

## Final Images

With the lights in place, the final steps were to adjust the camera and flash settings. The camera settings I used killed the ambient light in the room, so the only illumination was from the Speedlights. The camera was set to Manual mode with a shutter speed of 1/250 second, ISO 100, and f/7.1. The settings for this photo were covered in [Chapter 11](#) , but I'll recap here to show how I built the scene.

With the SU-800 on the camera, I turned off groups A and B and set group C to Manual mode and a power of 1/16. This created the red background behind Tim in [Figure 18.29](#) .



**Figure 18.29** With just the group C lights firing, you can see the red glow on the background and the silhouette of Tim.

The next step was to turn on group B on the SU-800. These two lights were also set to TTL mode with -1 Flash compensation. I had Tim turn toward the main light and tested the sidelights. Once I was happy with the way the light was striking Tim ( [Figure 18.30](#) ), I turned on group A on the SU-800 and set it to Manual flash mode and 1/4 power ( [Figure 18.31](#) ).



**Figure 18.30** With group B turned on, the sidelights illuminate the side of Tim's face and the back of his Gi (karate uniform).



**Figure 18.31** All three groups of lights were now firing, and the light was how I wanted it. Now it was just a matter of adjusting the kick and Tim's arms so I could see more of his face.

For the final image ( [Figure 18.32](#) ), I moved the background light farther away from the backdrop to increase the spread of the red

light and had Tim keep his left arm lower down so that I could see more of his face. It took about 15 kicks to get one that both Tim and I liked.



NIKON D4 ISO 100 1/250 SEC. F/7.1

**Figure 18.32** With all the lights firing and Tim kicking, the final image took more than a few tries to get just right, but it was worth the work.



## **Final Thoughts**

Photographing athletes is great for a variety of reasons. As I mentioned earlier, athletes can perform the same act over and over again allowing you to set up an action portrait more easily. All the athletes I worked with in this book were willing to push the photoshoot to get the best images possible. For all the photos in this chapter and the photos for which I worked with Jennifer (the dancer), I went in with an idea but was open to what the subject wanted to do or could do. This collaboration made it much easier to get great photos because the subject was invested in the outcome.

## 19. Product Photography Examples



You can create great product photos using the Nikon Speedlights. This chapter shows what it is possible, whether using a single flash or many. I'll walk you through the gear you need, show how to set up the shot, and even discuss suggested camera and flash settings.

For all the example images, I used the Creative Lighting System's Advanced Wireless Lighting to trigger the remote flashes. You can use the built-in flash to trigger the remote units, or you can even use a TTL cord to trigger them from the camera. For all the photos, I used at least one light modifier, such as a softbox to diffuse the main light, or a Rogue Grid to control the spill of light on the background. Although you may never need to photograph splashing fruit, shinning knives, or glistening beer, the techniques required for the example shots will help you with many common photographic challenges.

### Strawberry Splash

Sometimes the easiest photos to take look the most impressive and complicated. For instance, suppose you want to capture a strawberry splashing into milk at the moment the berry breaks the surface of the liquid. This action sounds difficult to capture, but it really isn't. The hardest part is having the patience to drop the strawberry into the milk over and over again.

## Gear

This shoot does not need a lot of gear because it uses just one light. The real issue with this shoot is that it can get messy—a side effect of those splashing milk drops. The gear needed for this photo is as follows:

- **Strawberries** : You need some good-looking strawberries to drop in the milk. For the example shot, I spent a few minutes in the supermarket picking out the best pint of strawberries. Not all the strawberries need to be perfect, just two of three that have that proper strawberry shape. The color is also important; you are looking for a deep red because the image will be very bright. If your strawberry is on the lighter side to start with, it will look washed out in the final photo.
- **Milk** : The cheapest gallon of milk at the local supermarket works great. You can also add a little cold water, if you need to stretch the amount out.
- **Plastic tub** : You need a tub to hold the milk, one that's deep enough to hold enough milk to create a good splash as the strawberry hits it. A white plastic tub works the best, but you can also use a clear one, as long as it is big enough so that you don't see the edges (you don't want to see anything that doesn't look like milk). Once again, the supermarket offers inexpensive options.
- **Speedlight** : The image will be lit by a single Speedlight in a softbox. I used an SB-910, but you can use any Speedlight that can act as a remote.
- **Softbox** : The Speedlight needs to be diffused so that you don't get hard shadows when the milk splashes up. I used the 26-inch Westcott Rapid Box Octa, which was the perfect size to light up the splash.
- **Boom or Century Stand** : The light needs to be placed above the tub of milk and aimed down so that it can light the splash from above. To do this, you need a way to hold the light in place. A boom or a century stand can handle the job with ease. I prefer to use the century stand because it takes up less space, and I don't have a lot of room to begin with.
- **Commander unit** : You will need a way to trigger the light from the camera. I used the SU-800, but you can use another Speedlight or the built-in flash to trigger the flash.

- **Camera and lens** : For the example photo, I used the Nikon D4 and a 105mm macro lens. You will want to use a lens that allows you to shoot a little wide so that you don't miss the splash. You can always crop the image later.
- **Tripod** : For this shot to work, the camera needs to be set in a tripod that can hold it at a downward angle above the plastic tub.
- **Towels** : You can't have too many towels handy on a messy shoot. I placed one towel under the plastic tub to catch any of the milk drops that made it over the edge but quickly realized I needed another towel to dry the milk from the strawberries I used as models. Each time I dropped a strawberry into the milk, I needed to fish it out and gently dry it for the next take.

## Taking the Photo

The setup for this photo is simple: Place the tub full of milk on the work surface and the Speedlight in the softbox above it so the light aims straight down on the milk. Then, you drop the strawberry and press the shutter release button as the strawberry hits the milk ( [Figure 19.1](#) ).



NIKON D4 ISO 1600 1/2000 SEC. F/7.1

**Figure 19.1** The goal with this shot is to have the strawberry in focus and to capture the instant it breaks the surface of the milk.

The first step is to get the exposure right using a shutter speed that

will freeze the action. With the camera set to Manual exposure mode, I tried setting the shutter speed to 1/2000 and the aperture to f/7.1. This gave me a shutter speed that froze the splash and enough of depth of field to keep the strawberry and splash in focus. I set the Speedlight to act as a remote in Manual flash mode at 1/8 power.

The final step is to adjust the ISO. You want the white milk to look white, so I suggest starting at an ISO of 800 and taking a photo. If the milk is not white enough, you can move the ISO to 1600. If the milk is still not white enough, you can either increase the ISO or increase the output of the flash. For [Figure 19.2](#), for example, a setting of 1/2000 second, f/7.1, and ISO 1600 with a Manual 1/8 power on the flash was still a little dull. I increased the power to 1/4, and that worked perfectly. Because the milk is white, it tends to reflect the light so it acts as a second light source.



NIKON D4 ISO 1600 1/2000 SEC. F/7.1

**Figure 19.2** Here is how the milk looked before I got the exposure dialed in. (I didn't need to drop a strawberry until I had the proper exposure, but a photo of just milk here would have been dull in more ways than one.) To help whiten the milk, I ended up increasing the output of the flash from 1/8 to 1/4 while keeping the camera settings the same.

The next step is to set the camera's focus on where you believe the strawberry is going to land. If you keep the camera on the Continuous Auto-Focus setting, the camera will try to focus as you press the shutter release button. This can cause a delay when you try to take the photo. You want to use Manual focus and pre-focus

on the spot where the splash will happen. I just floated a clothespin and used auto-focus to get focus set; then I turned the camera to Manual focus and made sure I didn't move the camera, lens, or milk ( [Figure 19.3](#) ).

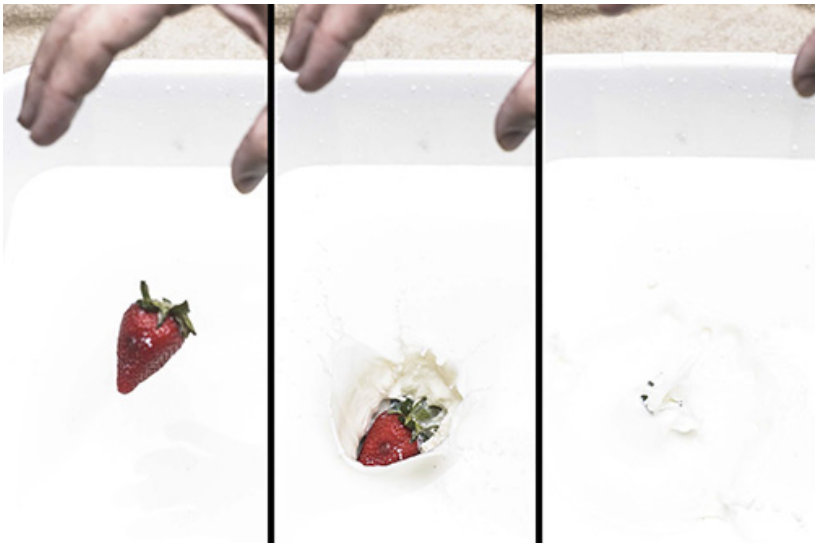


NIKON D4 ISO 1600 1/2000 SEC. F/7.1

**Figure 19.3** I used a clothespin to act as the strawberry while I adjusted the focus. Because it was right on the surface, I could easily focus on it.

The next steps are to actually drop the strawberry and take the photo. I held the strawberry over the milk with my right hand and put my left on the shutter release button. Then it was just a matter of dropping the strawberry, quickly moving my hand out of the way, and pressing the shutter release button as the strawberry hit the milk—over and over and over again.

You can see in [Figure 19.4](#) that you not only have to press the shutter release button at the right moment but also need to move your hand out of the way to avoid a shadow of the hand in the milk. Press the shutter release button too early, and the strawberry is frozen in mid-air and out of focus; press the shutter release button too late, and the strawberry is covered in milk. You also need to pay attention to the look of the strawberry; for example, the middle image is ruined by a bruise on the berry.



NIKON D4 ISO 1600 1/2000 SEC. F/7.1

**Figure 19.4** The sequence of the strawberry drop proves timing is everything and practice is vital.

I probably dropped the two best-looking strawberries into the same tub of milk more than 50 times before I got a shot I really liked. Between each drop, I waited until the milk was flat, and I dried off the strawberry. The final image ( [Figure 19.5](#) ) was the one where I could see the strawberry clearly and the splash looked the best.





NIKON D4 ISO 1600 1/2000 SEC. F/7.1

**Figure 19.5** Here's the final strawberry splash image, which was my favorite of the shots I took.

The setup for this shot is simple, and the results are fantastic. It's easy to try with a minimum of gear—just have a towel handy.

## Sunglasses and Watch

Depending on the product, your photography you may want to enhance or reduce reflections. Glasses are a great subject to photograph, for example, especially against a solid white background. The frames and lenses are both reflective but usually in different ways because of their materials. You also need to make sure that there is something that the lenses of the glasses can

reflect to give them shape. A wristwatch is slightly trickier to photograph because you need to watch the angle of the watch face in relationship to the light so that you reduce the reflection on the glass. I put these two products together in the same section because the lighting is really similar, and both can be shot with just one Speedlight.

## Gear

You can take this type of shot using a single Speedlight in a softbox and a couple of bounce cards. The only real differences are the subject and the angle of the light.

- **Sunglasses and watch** : Both subjects have reflective glass surfaces that need to be cleaned to remove dust, dirt, and especially any fingerprints.
- **Wire** : I used a small piece of wire to keep the watch strap in a loop. Buckle the strap and then place the wire inside and bend it to the right shape to position the watch exactly where you need it.
- **Speedlight** : The image is lit by a single Speedlight in a softbox. I used an SB-800, but you can use any Speedlight that can act as a remote.
- **Softbox** : The Speedlight needs to be diffused so that there are no bright spots to reflect off the glass. I used the 26-inch Westcott Rapid Box Octa because it is the perfect size for this. It is small enough to be easily managed but large enough to produce a pleasing soft light.
- **Boom or century stand** : The light needs to be placed above the product and aimed down. A boom or a century stand can hold the softbox in position and can easily be adjusted as you tweak the position of the light.
- **Commander unit** : You will need a way to trigger the light from the camera. I used the SU-800, but you can use another Speedlight or the built-in flash to trigger the flash. You can also use a TTL cord because the distance between the camera and the flash is short enough.
- **Camera and lens** : For this photo, I used the Nikon D750 and a 105mm macro lens, allowing me to fill the frame with the product. For the watch, I moved the camera in much closer than for the sunglasses.
- **White paper** : I used a single large sheet of white paper as

the backdrop.

## Taking the Photo

The key to these photos is the surface that the product is placed on. Using a large piece of white paper, you can create a seamless white backdrop for the glasses to sit on. You can see the glasses sitting on my version of the background in [Figure 19.6](#) .



**Figure 19.6** Sit the pair of glasses right on the seamless background.

For the sunglasses shot, the main light was an SB-910 in a softbox placed facing down over the work table and slightly toward the back. The SB-910 was set to Remote mode, channel 1, and group A. I triggered it from the camera using the SU-800, but you can trigger yours with any Speedlight or built-in flash that can be used in Commander mode. You can also use a TTL cord because the distance from the camera to flash is short enough.

Two more light sources finish the photo: a couple of bounce cards to open up the shadows on the side. Place these on either side of the glasses ( [Figure 19.7](#) ). For the final image ( [Figure 19.8](#) ), I set the Speedlight at 1/4 power and triggered it from the SU-800.



**Figure 19.7** Here the bounce cards are placed to add the highlights to the side of the glasses. You can adjust the cards to taste.



NIKON D750 ISO 400 1/200 SEC. F/20

**Figure 19.8** The final image of the sunglasses needed only a single light and a couple of bounce cards.

For the wristwatch photo, I replaced the sunglasses with the watch and moved the camera in closer. I used a few small pieces of wire to hold the watchstrap in a circle and then positioned the watch facing the camera.

Once the watch was in position, I moved the camera closer to fill the frame with the watch face and angled the overhead light until it looked right ( [Figure 19.9](#) ). I then added the bounce cards into place ( [Figure 19.10](#) ) to create the final image ( [Figure 19.11](#) ).

Once again, I triggered the Speedlight from the camera using the SU-800 in Manual mode at 1/4 power, the same as for the sunglasses.



NIKON D750 ISO 400 1/200 SEC. F/20

**Figure 19.9** Without the bounce cards in place, you can see that the bottom and the bottom edges of the watch are still a little dark. The bounce cards fix that.



**Figure 19.10** This behind-the-scenes shot shows the setup for the wristwatch image with the watch and the bounce cards in place.



NIKON D750 ISO 400 1/200 SEC. F/20

**Figure 19.11** The final watch image shows the face of the watch in great detail.

## Knife Set

Photographing knives can teach you all about reflective metal objects and the best way to light them. For this photo, I upped the stakes a little and posed three knives together, each at a slightly different angle. Lighting the background separately adds some separation from the knives. This image needs five Speedlights. One lights the background, one lights the overall scene, and each knife has a separate light on it to cause the reflection in the blades. The hardest part of this photo is getting the right angles on the Speedlights in front that create the bright reflections on the blades.



Each has to be adjusted until it's just right.

## Gear

This photo needs more gear because each of the knives needs its own Speedlight to create the reflection off the blade. If you want to try this but don't have a lot of lights, try it with just one knife and don't light the background. Then instead of five Speedlights, you can do it with two.

Here is the gear needed for the photo:

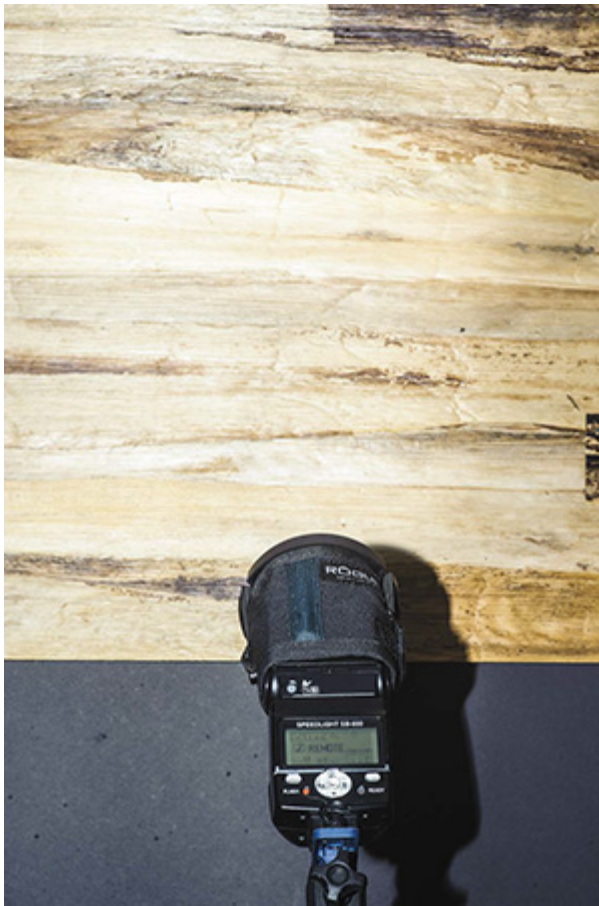
- **Knife set** : I used a set of three throwing knives because they are all the same and contain a lot of metal to reflect back at the camera. The handles are also metal but wrapped in paracord, adding some texture to the image.
- **Speedlights** : I used five Speedlight in the example image, but if you have one knife, you can get away with two lights. For the three-knife setup, you need one Speedlight on the background, one over the top in a softbox, and one on each knife.
- **Softbox** : The Speedlight over the top of the knives needs to be diffused so that you don't get hard shadows. I used the 26-inch Westcott Rapid Box Octa because it is the perfect size to light up all three knives. If you want the knives spaced further apart, you will need a bigger softbox or a strip softbox so that all three are covered.
- **Boom or century stand** : The overhead light needs to be placed above the knives and aimed down. To do this, you need a boom or a century stand to position the softbox.
- **Commander unit** : You will need a way to trigger the light from the camera. I used the SU-800, but you can use another Speedlight.
- **Camera and lens** : For this photo I used the Nikon D4 and a 70–200mm lens. You can use any lens that gives you the look you want. I wanted to shoot from further away to provide room to place the accent lights that illuminate the different blades, and the 200mm focal length allowed for this easily.
- **Tripod** : The camera needs to be set in a tripod that can hold it while you set up and test the lights.
- **Justin clamps** : These allow you to really fine-tune the exact placement of the Speedlights, which is what you need

here. You can use the Justin clamps on light stands as I did or just pull up some chairs and clamp the lights to their backs.

- **Light stands** : You need a light stand in the back to hold the background light and three light stands up front to hold each of the lights that create the reflections. If you use the Justin clamps, then you can use anything as a light stand; just clamp the lights to a chair back, for example.
- **Snoots** : The light used to create the reflections in the blades needs to be tightly controlled so that it doesn't spill over and light everything in the scene. You can use any snoots to do this; I used three of the Rogue FlashBenders rolled up as snoots.
- **Custom backdrop** : The backdrop is a piece of paper that is made to look like wood. You can buy some great papers to use in product photos at any good art supply store.
- **Wood** : I used a plain piece of scrap wood to hold the knives in place—simple and effective.
- **Rogue Grid** : A Rogue Grid is used on the background light to control the spill of light.

## Taking the Photo

Build the lighting for this photo from the back forward with the background light first, then the overhead light, and finally the three accent lights. For the example, I positioned the knives in the piece of wood point first and placed the wood on the work table. I then placed an SB-800 Speedlight on a low light stand and aimed it at the background. With a Rogue Grid over the flash head, the SB-800 was set to Remote mode, channel 1, and group C. For the background, I used a piece of art paper that was made to look like wood. You can see the setup in [Figure 19.12](#) . The goal is to create a bright spot in the middle of the background with the wood pattern at the edges. You can see the example image with only the background light firing in [Figure 19.13](#) .



**Figure 19.12** The background light aims at the custom art paper.



NIKON D4 ISO 400 1/100 SEC. F/9.0

**Figure 19.13** The background light alone silhouettes the knives.

The next step is to add the overhead main light. I used an SB-800 Speedlight in a Westcott Rapid Box Strip light placed overhead and to the rear of the knives. The Speedlight was set to Remote mode, channel 1, and group A. I wanted the overhead light to add some light to the whole scene and add some illumination to the top of the knives. The overhead light firing alone creates [Figure 19.14](#) .



NIKON D4 ISO 400 1/100 SEC. F/9.0

**Figure 19.14** In this test firing, the knives are lit by just the overhead softbox held in place with a century stand. The light is over and slightly to the rear of the knives.

The most difficult part of this setup is aiming the three Speedlights used to illuminate the knife blades. For the example, each of these is set to Remote mode, channel 1, and group B. Because all these lights are in the same group, they will all have the same power and need to be roughly the same distance from the blades. Each of these Speedlights also needs a snoot over the end to control the spill of light. (I used a Rogue FlashBender.) To simplify positioning these lights, turn off two of the flashes and aim the first one, and when you have that flash aimed properly, repeat the same process for the other two lights. You can see the three speed lights in [Figure 19.15](#) all aimed at the work area. Each of the Speedlights is in a Justin clamp and mounted on a light stand. [Figure 19.16](#) shows how the individual lights look when fired separately.



NIKON D4 ISO 400 1/100 SEC. F/9.0

**Figure 19.15** The three accent lights need to be aimed individually. The three Speedlights used for the example shot are mounted in Justin clamps on light stands, and each has a Rogue FlashBender as a snoot.



NIKON D4 ISO 400 1/100 SEC. F/9.0

**Figure 19.16** In these images, you can see how the individual lights each illuminate and reflect off of a different blade.

The final step is to turn on all the lights and make sure everything still looks great. In **Figure 19.17** you can see all three front lights are turned on, as well as the overhead light. All that is needed is to turn on the background light. The final settings for the images were Manual power at 1/8 for group A, Manual power at 1/64 for group B, and Manual power at 1/8 for group C (see **Figure 19.18**).



NIKON D4 ISO 400 1/100 SEC. F/9.0

**Figure 19.17** Test just the front lights and the overhead light.





NIKON D4 ISO 400 1/100 SEC. F/9.0

**Figure 19.18** Here's the final image of the knife set with all of the Speedlights firing.

## Camera Body

I take a lot of photos of cameras, flashes, and other gear, which are a lot more challenging to photograph than you might think.

Because the gear is usually a combination of plastic, rubber, metal,

and glass, you must deal with several different reflective surfaces. You also want certain features, such as the model name, to be properly lit and basically look as good as possible. To succeed, you need to add little splashes of light in just the right places. Doing so requires a combination of multiple Speedlights, flags, and bounce cards. Plus, to light the background, you need another Speedlight, grid, and gel.

## Gear

This image takes more lights than you would think: Four Speedlights are needed to light up everything just right. Here is a complete gear list:

- **Camera body** : The model for the example photo is the Nikon D750 with the MB-D16 Battery Pack. This camera makes a difficult product to photograph, especially because the name plate is at a different angle than the Nikon logo and both need to be lit properly.
- **Speedlights** : The image is lit by a four Speedlights. The main light is in a softbox over the camera, then two different Speedlights highlight different parts of the camera, and a fourth Speedlight lights the background.
- **Softbox** : The main Speedlight needs to be diffused so that you don't get hard shadows. I use the Westcott Rapid Box strip because it is the perfect size to light up the camera body.
- **Snoots** : The two accent flashes need snoots so that the light from them doesn't just spill everywhere. Two small Rogue FlashBenders rolled into snoots, one on each Speedlight, work perfectly to control the light.
- **Rogue Grid and gels** : One of the easiest and coolest-looking backgrounds can be created by using a Rogue Grid and a colored gel.
- **Flags** : A couple of pieces of black poster board help to control the spill of light.
- **Bounce cards** : A couple of pieces of white poster board help to open up some of the shadow areas and add a little light, especially to the sides of the camera.
- **Boom or century stand** : The light needs to be placed above the camera and aimed down so that it illuminates the top of the camera. To do this, you need a way to hold that

light in place. Either a boom or a century stand can do this with ease.

- **Justin clamps** : Clamps hold and position the two Speedlights that illuminate the details on the camera. Because they allow the flash to be precisely positioned, I use Justin clamps either attached to the work surface or mounted on light stands.
- **Light stand** : You will need a couple of light stands for the two Speedlights that add the detail light, as well as one for the back light. Depending on your setup, if you use the Justin clamps, the two detail lights can be mounted on just about anything from a chair to the actual work table.
- **Commander unit** : You will need a way to trigger the lights from the camera. I used the SU-800, but you can use another Speedlight. I used all three groups for this photo, so I recommend an SB-900, SB-910, SB-800, or SU-800.
- **Camera and lens** : For the example photo I used the Nikon D4 and a 70–200mm lens, but you can use any camera and any lens you want. The key to consider is how much of the surrounding area you want in your image.
- **Tripod** : For this shot to work, the camera needs to be set in a tripod that can hold it in the same spot while you adjust the lights.
- **Black board** : The background is a piece of black board.

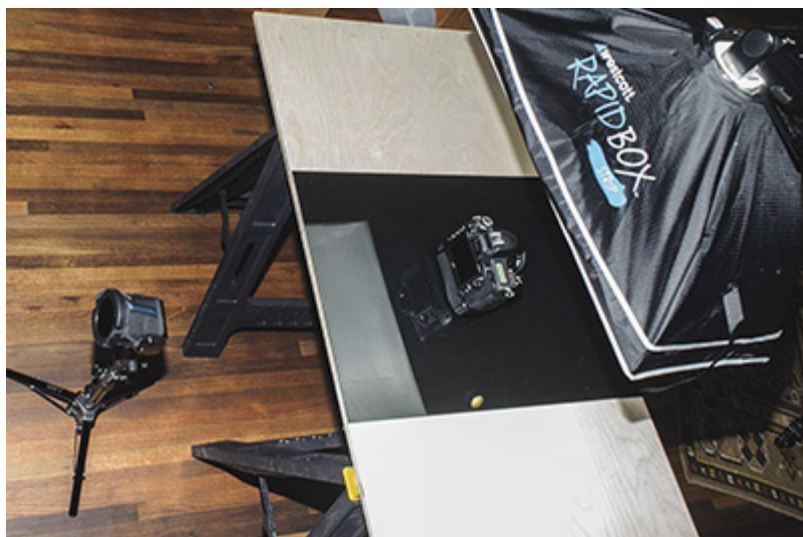
## Taking the Photo

The first step is to set up the work area and clean the model camera and lens. Wipe off the camera and use compressed air to blow the dust off the rubber grips. Polish the logo and the camera name with a lint-free cloth and clean the lens. Once you set the model camera on the work surface, try hard not to touch it at all to avoid fingerprints. If you do have to move the model camera, use a cloth or cotton gloves to help reduce any fingerprints or smudges.

The next step is to set up the camera that you're using to take the photo. Place it on a tripod and aim it at the model camera. Because I took the example photo specifically for this book, I wanted to take a portrait-orientated photo, so I set the camera in the tripod vertically and aimed straight at the model camera.

With both cameras in position, set up your lights. I set the background light, an SB-800, to Remote mode, channel 1, and

group C. I placed it on a short light stand positioned between the work surface and the background, which was a plain piece of black cardboard. The SB-800 was fitted with a Rogue Grid and a red gel, as well ( [Figure 19.19](#) ). I picked red because the Nikon colors on the camera are black and red, but you can use any color you wanted.



**Figure 19.19** The D750 and the background light are in position, and the SB-800 is fitted with the Rogue Grid and red gel.

Now it is just a matter of taking some test shots to ensure the background light is in just the right place. For the example, I first set the camera to Manual mode with a shutter speed of 1/200 second, an f/16 aperture, and an ISO of 400. On the SU-800 with the channel set to 1 and groups A and B turned off, I set group C to 1/4 power and took some test shots as I adjusted the position of the background light. I still didn't like the color, so I adjusted the power to 1/2 and got the image shown in [Figure 19.20](#) .



NIKON D4 ISO 400 1/200 SEC. F/16

**Figure 19.20** Take some test shots to begin. Here I photographed the Nikon D750 with just the background light turned on.

Once the background light is set, position the main light, which is the one overhead in the softbox. I used the SB-910 in a Westcott Rapid Box Strip held above and slightly behind the camera using a century stand. I set the Speedlight to channel 1 and group A, and I set the Commander's mode to Manual power at 1/8. The main light and the backlight together produce the image in [Figure 19.21](#) .



NIKON D4 ISO 400 1/200 SEC. F/16

**Figure 19.21** As a test, I photographed the Nikon D750 with the background and overhead lights both on.

Next, place the bounce cards to help the main light illuminate the sides of the camera, adding just a little fill light and giving the camera some shape. Also, add a set of flags to keep the front lights from spilling into the back where you don't want them. You can see the setup in [Figure 19.22](#) and the effect the cards have in [Figure 19.23](#) .



**Figure 19.22** The Nikon D750 setup shows the placement of the bounce cards.





NIKON D4 ISO 400 1/200 SEC. F/16

**Figure 19.23** Here's the Nikon D750 photographed with just the background light on and the bounce cards in place. You can see how they help define the edges of the camera.

The final step is to add the two accent lights that illuminate the front of the camera. Place the first accent to light up the left side of the camera and the second to illuminate the right side. The light needs to hit the D750 and bounce off at the proper angle to give it the shine.

I set the two front lights both to channel 1 and group B and then placed them really close to the camera. Manual power at 1/128 is just enough light to illuminate both the front left and right of the camera body. The angle is the key, however. As you can see in [Figure 19.24](#), the light on the D750 name was off at first and the text was not reflecting the light and looked dull. All I needed to do was move the light slightly to the right, and the angles at which the light hit the reflective name plate changed. The name bounced

the light right at the camera, making the D750 stand out in [Figure 19.25](#) .



NIKON D4 ISO 400 1/200 SEC. F/16

**Figure 19.24** All the lights are now firing, but as you can see, the D750 name is still not reflecting the light in the way it should.



NIKON D4 ISO 400 1/200 SEC. F/16

**Figure 19.25** Changing the accent light produced this final image with the lights bouncing off all the surfaces exactly the way I wanted.

## Beverage Bottle

Photographing a bottle full of liquid and making it look appealing takes some work. It's not difficult, but it can take a quite a few

lights and some careful placement of flags to get the light just right.

The basics for this photo are to light the bottle and the liquid inside with a light shining through the bottle right at the camera. A light on each side adds some shape to the bottle, and a light overhead lights up the bottle cap and the top part of the glass. Another light then illuminates the label, and a final light adds a red splash to the background.

## Gear

This photograph takes the most gear out of all the examples, but much of the lighting is actually very subtle. Here is the gear you will need:

- **Bottle** : Just pick your favorite bottle to photograph.
- **Speedlights** : The image is lit by four Speedlights. It needs a light shining through the bottle, one overhead, a separate light for the label, and then a final light on the background.
- **Softbox** : The overhead Speedlight is in a small softbox because the light needs to be diffused so that you don't get hard shadows.
- **Rogue Grid and gels** : Some of the easiest and coolest-looking backgrounds are created by using a Rogue Grid and a colored gel.
- **Snoot** : A snoot on the light used to illuminate the label keeps the light from spilling all over the rest of the scene.
- **Bounce cards** : A couple of pieces of white poster board create the lighting on the side of the bottle.
- **Boom or century stand** : One light needs to be placed above the bottle and aimed down so that it illuminates the bottle cap. Either a boom or a century stand can hold a light in this position with ease.
- **Justin clamps** : These are needed to hold and position the Speedlights that are going to illuminate the details on the label and the Speedlight that will light the background.
- **Light stand** : You will need a light stand for the Speedlight that adds the detail to the label.
- **Commander unit** : You will need a way to trigger the lights from the camera. I used the SU-800, but you can use another Speedlight. I used all three groups for this photo, so

I recommend an SB-900, SB-910, SB-800, or SU-800.

- **Camera and lens** : For this photo, I used the Nikon D4 and a 105mm lens, but you can use any camera and any lens you want. Your choice depends on how much of the surrounding area you want in your image.
- **Tripod** : For this to work, you need a tripod that can hold the camera in the same spot while you adjust the lights.
- **Black board** : The background is a piece of black board.
- **Glycerin** : You can get this at the pharmacy. When mixed with some water and put in a spray bottle, glycerin adds that moisture to the glass that makes the image pop and the bottle look like it's fresh-from-the-cooler cold.

## Taking the Photo

Position the bottle in the middle of the work area and set up the camera facing it. Once the bottle and camera are in place, try to not move them at all. The first lighting step is to set up the light in the background that will blast its photons through the bottle right at the camera and make the liquid in the bottle glow. For the example, I set this Speedlight to Remote mode, channel 1, and group C. Even though I am setting up the background light first, I still use group C because I consider it a background light. The idea is to get the bottle glowing but not so much that it looks radioactive. [Figure 19.26](#) shows the bottle with only the background light firing.



NIKON D4 ISO 400 1/200 SEC. F/16

**Figure 19.26** The bottle glows with just the background light on.

The next step is to add the overhead light that illuminates the bottle cap and the neck of the bottle. I used a small LumiQuest softbox on an SB-800 set to Remote mode and group A. This light is positioned over the bottle and pointed straight down to create the effect in [Figure 19.27](#) . This light will also light up the sides of the bottle using some bounce cards that are set up around the bottle shown in [Figure 19.28](#) .



**Figure 19.27** The overhead light in a LumiQuest Softbox aims down at the bottle.





**Figure 19.28** The four bounce cards positioned around the bottle reflect light back to create the great edge lighting.

The next step is to add the light for the label. For the example, I used an SB-910 on a light stand positioned right by the camera lens. I used a Justin clamp on the side of the light stand so that the light could be right over the lens, aimed directly at the label. A Rogue FlashBender used as a snoot kept the light tight and right on the label. You can see the setup in [Figure 19.29](#). For the example, I set this light to Remote mode and group A. It will fire at the same power and mode as the overhead light, but I can control its power and spread by just changing the distance between it and the bottle.



**Figure 19.29** The Speedlight in the Justin clamp attached to the light stand aims at the bottle.

The final step is to attach a light to the top of the background holder and aim it down. Equipped with a Rogue Grid and a blue gel, this light was set to Remote mode and group B for the example. **Figure 19.30** shows the light's position, and you can see the final image in **Figure 19.31** . The power settings for the three groups were 1/4 power for group A, 1/8 for group B, and 1/64 for group C.



**Figure 19.30** Here is the background light positioned above the background.



NIKON D4 ISO 400 1/200 SEC. F/16

**Figure 19.31** Here is the final image with all four Speedlights firing.

## Wine Pour

This final example photo captures a pour from a bottle into a glass. The glass that the liquid is being poured into is captured with one light, which bounces off the background. Because the glass is

transparent, the camera is actually capturing the light bouncing off the background and shining through the glass. A second light above the glass lights up the liquid, and a third light evens out the light on the upper part of the background. If you have just a single light, you can try this shot with only the light that bounces off the background because it will give you a good idea of the lighting used.

## Gear

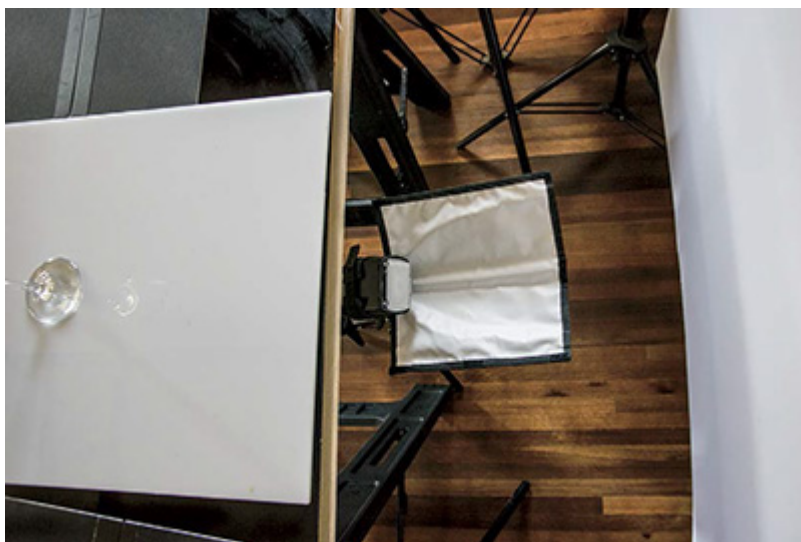
The gear for this shoot is pretty simple; the hard part is the timing and the setup. Here is the gear you need to capture this shot:

- **Bottle** : Just pick your favorite bottle to pour from. Make sure the top of the bottle is clean.
- **Glass** : You will need a wine glass (or any glass) to pour the liquid into. The glass needs to start off clean.
- **Food coloring** : The liquid I am pouring is just red food coloring and water. It's less expensive than wine and easier to clean up, plus it gives me more control over the color.
- **Speedlights** : The image is lit by three Speedlights. The main light is actually a Speedlight in the back that bounces off the background and illuminates the glass. A second Speedlight above the background lights up the area behind the glass to get that all-white look. One more Speedlight in a softbox overhead lights up the liquid.
- **Softbox** : The overhead Speedlight is in a Westcott Rapid Box Strip for a softer light.
- **Flags** : A couple of pieces of black poster board help to control the spill of light and create the thin black lines on the edge of the glass.
- **Century stand** : The overhead light is on a century stand to hold the light over the glass.
- **Justin clamps** : These are needed to hold and position the Speedlights that are going to illuminate the background.
- **Light stand** : You will need a light stand for the background light.
- **Commander unit** : You will need a way to trigger the lights from the camera. I used the SU-800, but you can use another Speedlight. I used all three groups for this photo, so I recommend an SB-900, SB-910, SB-800, or SU-800.

- **Camera and lens** : For this photo I used the Nikon D4 and the 24–70mm lens, but you can use any camera and lens you want. Just make your choice based on how much of the surrounding area you want in your image.
- **Tripod** : The camera needs to be set in a tripod that can hold it in the same spot while you adjust the lights.
- **White board** : The background is a piece of white board, and a second piece is used as a base to set the glass on.
- **Towels** : Pouring liquid can create a mess, so having a towel or three is a good idea.

## Taking the Photo

To begin, place the background light in a light stand behind and below the work surface with a Rogue FlashBender (or other reflector) to bounce the light up onto the background ( [Figure 19.32](#) ). Because glass is lit with a reflected light from the background, you can light the background and the glass with one light. This raised an issue for me when taking the example shot because I usually assign the main light to group A and the background light to group C. When the background light is the main light, I have to make a choice. This time, I chose group C and channel 1 because the light is physically in the position to light the background. With the wine glass in place, you can see how the background light illuminates the glass in [Figure 19.33](#) .



**Figure 19.32** The SB-910 acts as a background light with a Rogue FlashBender to bounce more of the light onto the

background.



NIKON D4 ISO 1600 1/1000 SEC. F/16

**Figure 19.33** Here the wine glass is lit with just the background light.

To add some definition to the glass, use a couple of black pieces of board as close to the glass as possible without being in the frame. This creates a thin black line on the edges of the glass giving it shape and form. You can see the placement of the black flags in [Figure 19.34](#) .





**Figure 19.34** The pieces of black board create the thin black lines on the edge of the glass.

The final pieces to add are a light to illuminate the top of the background and a light over the top of the glass to help illuminate the bottle and the liquid pouring. For the first light, I used a Speedlight in a Justin clamp attached to the top of the background and aimed down with a FlashBender bouncing the light on the top of the background while at the same time controlling the spill of light. The last light I placed in Westcott Rapid Box Strip over the top of the setup. You can see the setup in [Figure 19.35](#) . The light over the top of the setup was set to Remote mode, channel 1, and group A, while the light used to light up the top of the backdrop was set to Remote mode, channel 1, and group B.



NIKON D4 ISO 1600 1/1000 SEC. F/9

**Figure 19.35** The final setup is ready to capture the pour into the glass.

The final steps are to set the exposure and to pour the liquid into the glass while taking the photograph (the tricky part). You need to use a fast enough shutter speed to freeze the pour as it lands in the glass. For the example, a shutter speed of 1/1000 made it easy. That speed also means using a higher ISO (I used 1600) and a medium depth of field (for me, f/9). The next step is to dial in the power for the three groups of lights, and with a little experimentation I found that worked out to group A at 1/16, group B at 1/4, and group C at 1/4. The final image is [Figure 19.36](#) .



NIKON D4 ISO 1600 1/1000 SEC. F/9

**Figure 19.36** The final image captures the pour into the glass.

As for the strawberry drop, the tricky part to this image is to press the shutter release button at the right time. A couple of different approaches can help you get the best results with the fewest repeats. The best way is to enlist a friend. While he or she pours the liquid (or drops the strawberry), you press the shutter release button. If you are working alone (as I was in these shots), you can use one of the remotes that Nikon makes to trigger the camera from a distance. Depending on the camera, there are a variety of different remotes that work either wirelessly or wired. Check the camera manual for your specific camera. Finally, you can try the method I used for both of these shots, which is to physically press the shutter release button with my left hand while pouring (or dropping) with my right. It takes patience and timing but is not as hard as it sounds.

## **Final Thoughts**

Product photography can be a lot of fun. The models don't need to be paid and can hold their poses forever. If you need inspiration, just open any magazine and check out the advertisements. When you look at the images, start to work out the lighting. Where is the main lighting coming from, and how was the scene put together? Trying to build the scene at home is a great way to practice your product lighting.

# Index

## A

AA (Auto-Aperture) mode, 148 –149 , 150 , 174 , 177

accent light, 205

accessories. *See also* lighting studies

batteries, 98 –102

close-up kits, 97 , 106 –109 , 259 –260

packing, 227

product photo, 245 –247

supplemental battery packs, 103

TTL remote cords, 104 –105

types of, 97

action shots, 233 –239 , 347 –369

Bike Rider study, 358 –362

capturing motion, 236 –238 , 239 , 347 , 369

flash power needed for, 236

freezing motion, 37 –38 , 234 –236 , 267 –269

Golf Swing study, 348 –352

Karate Kick study, 363 –368

Soccer Kick study, 353 –357

Speedlights for, 233 , 239

Strawberry Splash study, 372 –376

using multiple flashes, 236

Advanced Wireless Lighting. *See* AWL

AF-Assist Illuminator, 161 –162

alkaline batteries, 99

ambient light

evaluating for portraits, 222

intensity of, 6

measuring, 30 –32

reducing effect of, 279 –283 , 333

shutter speeds for capturing, 38 , 39

using flash with, 319

working with setting sun, 350

angle of incidence, 251 , 252

angle of reflection, [251](#) , [252](#)

Aperture Priority (A) mode, [45](#) , [46](#) , [48](#)

aperture settings

- about, [36](#)

- f-stops for, [38](#) , [40](#) –[42](#)

- maximum, [41](#) –[42](#)

- variable aperture zoom lenses, [42](#)

- zoom lenses with constant and variable, [42](#)

Attachment Ring SX-1, [106](#)

Auto-Focus assist lamp, [161](#)

AWL (Advanced Wireless Lighting), [56](#) , [165](#) –[183](#)

- about, [165](#) , [183](#)

- controlling Commander and Remote flash modes, [174](#) –[175](#)

- firing groups of remote flashes, [170](#) , [185](#) , [186](#) –[188](#)

- Quick Wireless Control mode, [181](#) –[182](#)

- Repeating Flash Commander mode, [178](#) –[180](#)

- selecting Commander or Remote mode, [166](#) –[167](#)

- Speedlights using, [67](#) , [72](#)

- used by close-up kits, [106](#)

- using Speedlights in Remote mode, [167](#) –[170](#)

- wireless triggering sensor for, [69](#)

## **B**

backdrops, [275](#) , [287](#) , [288](#) , [289](#)

background

- black seamless paper for, [364](#)

- bright ambient light as, [292](#) –[294](#)

- changing color of product, [262](#) –[263](#)

- how much light hits, [243](#) –[244](#)

- setting up backdrop as, [275](#)

- stand kit for, [275](#) , [299](#)

background light, [205](#)

backlighting, [9](#)

barn doors, [122](#) , [366](#)

batteries, [98](#) –[102](#)

- care of, [100](#) –[101](#)

- cost of, [98](#) , [101](#)

- flash recycle time and, [66](#)

- packing, 227
- rechargeable, 100 , 220
- single-use, 99
- supplemental battery pack, 103
- tips to avoid damaging Speedlights, 102
- types of, 98 –101
- battery chargers, 99 , 101 , 227
- battery packs, 103
- Beverage Bottle lighting study, 391 –394
- Bike Rider lighting study, 358 –362
- black seamless paper, 364
- booms, 139 , 364 , 372 , 386
- bounce cards, 113 –114 , 378 , 379 , 386 , 389 , 390
- brackets, 140 –142
- broad and short lighting, 210 –211
- built-in flashes
  - for enthusiast cameras, 59 –62
  - models unable to use as Commander, 171
  - remote group power settings for, 176
  - using as Commander, 166 , 173 , 175
- butterfly lighting, 208

## C

- C-stands, 138 –139
- Camera Body lighting study, 386 –390
- cameras
  - adjusting metering mode for, 26
  - checklist for packing, 226
  - CLS for all, 55 –56
  - dynamic range of sensors, 24 –25
  - enthusiast, 59 –62
  - entry-level, 62 –63
  - Exposure Compensation feature, 46 –48
  - exposure modes for, 45 –46
  - Flash Compensation settings, 49 –50
  - ISO settings for, 42
  - models unable to use built-in flash as Commander, 171
  - professional-level, 56 –57



- releasing shutter of, 35
- capacitor, 66
- capturing motion, 236 –238 , 239 , 347 , 369
- casters for light stands, 138
- Center-Weighted metering mode, 28 –29
- channel settings, 168
- clamps, 229 , 245
- cleaning items before shooting, 248 –249
- close-up kits, 97 , 106 –109 , 259 –260
- close-ups of products, 257 –260
- cloth surfaces, 253
- CLS. *See* Nikon Creative Lighting System
- Cody's lighting studies, 287 –290 , 309 –313 , 336 –340
- cold shoes, 141 , 299
- color. *See also* gels
  - flash, 14 –15
  - of light, 11 –12
  - modifying temperature of, 123 –125
  - reflection and surface, 254
  - reflector, 127
  - white balance settings for, 14
- color correction gels, 123 –125 , 331 , 335
- color temperature. *See* temperature
- color wash, 125 –126
- Commander mode. *See also* specific Speedlights
  - adjusting remote group settings, 175
  - channel settings for, 168
  - choosing Remote or, 166 –167
  - controlling flash in, 174 –175
  - setting up, 171 –173
- constant aperture zoom lenses, 42
- cost of batteries, 98 , 101
- Creative Lighting System (CLS). *See* Nikon Creative Lighting System
- CTB (color temperature blue) gels, 124 , 125
- CTO (color temperature orange) gels, 124 –125

Dancer lighting studies, [274–278](#) , [298–301](#) , [322–327](#)  
depth of field, [40](#) , [258–259](#)  
diffuse reflection, [252](#)  
diffusers, [115–116](#)  
diffusion dome, [274](#) , [276](#) , [278](#) , [309](#) , [310](#)  
diffusion panel, [118–120](#)  
direction of light, [7](#)  
down lighting, [9–10](#)  
DSLR cameras. *See* [cameras](#)  
Dugout lighting studies, [279–283](#) , [302–305](#) , [328–330](#)  
DX sensors, [58](#) , [61–62](#)

## E

electronics, [250–251](#)  
enthusiast cameras, [55](#) , [59–62](#)  
entry-level Nikon cameras, [55](#) , [62–63](#)  
environmental portraits, [218–225](#)  
    defined, [218–219](#)  
    headshots, [225](#)  
    preparing for, [219–221](#)  
    taking, [222–224](#)  
ExpoImaging flash tools, [130–131](#)  
exposure, [35–51](#)  
    about, [35](#) , [51](#)  
    aperture settings controlling, [38–42](#)  
    combined Exposure and Flash Compensation settings, [50–51](#)  
    combining speed, aperture and ISO settings for, [42](#) , [44](#)  
    controlling brightness and shadows with, [25](#)  
    Flash Compensation, [49–50](#)  
    ISO and, [42](#)  
    Nikon exposure modes, [45–46](#)  
    setting for Strawberry Splash, [373–374](#)  
    shutter speed settings and, [36–38](#) , [39](#)  
    using Exposure Compensation, [46–48](#)  
Exposure Compensation feature, [46–48](#) , [50–51](#)  
exposure modes, [45–46](#)  
exposure value (EV), [46](#)  
eyes, [24–25](#) , [157](#)

## F

### f-stops

- illustrated, 40

- measuring aperture in, 38 , 40 –42

- understanding stops, 43

### falloff of light, 17

### fast lenses, 41 –42

### fill light, 205

### flags, 120 , 122 , 255 –256 , 363 , 366

### flash brackets, 104 –105

### flash color, 14 –15

### Flash Color Information Communication feature, 162 –163

### Flash Compensation feature, 49 –51

### flash illumination patterns, 114 –115

### flash modes

- about, 148 –149

- Auto-Aperture mode, 148 –149 , 150 , 174 , 177

- available in SU-4 mode, 195

- controlling for Commander and remote flashes, 174 –175

- GN mode, 150 –151

- Manual, 45 , 46 , 152 –153 , 174 , 176 –177

- Repeating, 153 –154

- TTL mode, 149

### flash stands, 134 –135

### Flash Value Lock. *See* FV Lock

### flashes. *See also* flash modes ; off-camera flash triggers ; Speedlights

- adjusting remote group settings, 175 –177

- cameras with built-in, 59 –62

- components of, 66

- firing groups of remote, 170 , 183 , 185 , 186 –188 , 367

- flash compensation for, 49 –50

- light falloff for, 17

- Manual mode and, 152

- measuring light from, 30 –32

- planning for location shots, 219

- power needed for action shots, 236

- provided by batteries, 98 –99

- recycle time for, [66](#) , [152](#)
- shutter speeds with, [37](#) –[38](#)
- sync speed for, [38](#) , [234](#)
- fluorescent lighting, [13](#)
- focus
  - AF-Assist Illuminator for, [161](#) –[162](#)
  - setting for Strawberry Splash, [373](#) –[374](#)
  - tight focus for flash light, [279](#) –[283](#)
- freezing motion, [37](#) –[38](#) , [234](#) –[236](#) , [267](#) –[269](#)
- front lighting, [8](#)
- full cut, [124](#)
- FV (Flash Value) Lock, [153](#) –[157](#)
  - about, [153](#)
  - avoiding eye blinking, [157](#)
  - locking lighting consistency with, [157](#)
  - recomposing images with, [155](#) –[157](#)
- FX sensors, [58](#) , [59](#) –[60](#)

## G

- gaffer tape, [279](#) , [280](#) , [364](#)
- gels
  - about, [14](#) , [123](#)
  - color correction, [123](#) –[125](#) , [331](#) , [335](#)
  - color wash for, [125](#) –[126](#)
  - cut of, [124](#)
  - illustrated, [15](#)
  - packing, [227](#)
- glass surfaces, [252](#) –[253](#) , [396](#) –[397](#)
- glasses, fast, [41](#) –[42](#)
- glowing computer screen photo, [331](#) –[335](#)
- glycerin, [391](#)
- GN mode, [150](#) –[151](#)
- gobos, [122](#) –[123](#) , [255](#) –[256](#)
- Golf Swing lighting study, [348](#) –[352](#)
- grids, [120](#) , [121](#) –[122](#) , [130](#) , [228](#) , [229](#) , [273](#) , [279](#) –[283](#)
- Guide Numbers (GNs), [148](#)

## H

half cut, [124](#)

hard light

- controlling in product photos, [243](#)

- creating, [328](#) – [330](#)

- defined, [16](#)

- shadows and, [212](#) – [215](#)

headshots, [225](#)

High-Speed Sync, [159](#) – [161](#) , [234](#) – [235](#) , [239](#)

Highlight-Weighted metering mode, [27](#) – [28](#)

Honl modifiers, [229](#)

Honl Photo flag, [122](#)

Honl Photo light shapers, [129](#)

hot shoes, cold shoes vs., [141](#)

## I

incandescent lighting, [13](#)

incident light meter, [22](#) , [23](#)

intelligent TTL. *See* [TTL modes](#)

intensity of light, [6](#)

Inverse Square Law, [17](#)

ISO

- about, [36](#) , [42](#)

- combining with aperture and shutter speed, [42](#) , [44](#)

- setting, [46](#) , [152](#)

## J

jewelry, [249](#)

Joe McNally Signature line, [128](#) – [129](#)

Justin clamp, [135](#) – [136](#) , [227](#) , [228](#) , [314](#) , [315](#)

## K

Karate Kick lighting study, [363](#) – [368](#)

Kelvin scale, [12](#)

Kids lighting studies, [284](#) – [286](#) , [306](#) – [308](#) , [331](#) – [335](#)

Knife Set lighting study, [380](#) – [385](#)

## L

labeling Speedlight groups, 187

Lasolite McNally TriGrip, 348 , 349

Lastolite accessories, 128

lenses

choosing for close-up photos, 257 –258

fast, 41 –42

macro, 97 , 106 –107 , 259 –260

packing, 226 –227

zoom, 42

Librarian lighting studies, 291 –294 , 314 –317 , 341 –344 , 345

light meters, 22 –23 . *See also* metering modes

light modifiers, 111 –131 . *See also* gels

about gels, 14 , 123

adjusting tilt and rotation of flash, 113

bounce cards, 113 –114

diffusers, 115 –116

diffusion panel, 118 –120

ExpoImaging flash tools, 130 –131

flags, 120 , 122 , 255 –256 , 363 , 366

flash illumination patterns, 114 –115

gobos, 122 –123 , 255 –256

grids, 120 , 121 –122 , 130 , 228 , 229 , 273 , 279 –283

Honl Photo light shapers, 129

Joe McNally Signature line, 128 –129

Lastolite accessories, 128

LumiQuest modifiers, 129

reflectors, 127 , 230 –231 , 284 , 285 , 286 , 287 –290

snoots, 120 –121 , 223 , 291 , 292 , 293 , 382 , 383

softboxes, 117 –118 , 129 , 131 , 189 , 206 –211 , 230 , 298

types of, 111 –112 , 131

umbrellas, 116 –117 , 230 , 298 , 299 , 300 , 322 , 324 , 325 , 337 –338 , 349 , 351 , 352

wide-angle diffuser panel, 112 –113

zooming flash head, 112

light spill, 303 , 330 , 366 , 382 –383

light stands, 137 –138 , 230 , 231

lighting. *See also* action shots ; portrait shoots ; product photography

- about, [5](#)
- backlighting, [9](#)
- bright ambient background, [292 –294](#)
- broad and short, [210 –211](#)
- butterfly, [208](#)
- color and temperature of, [11 –12](#)
- conflicting sources of, [286](#)
- direction of, [7](#)
- down, [9 –10](#)
- flash color, [14 –15](#)
- focusing tight flash, [279 –283](#)
- front, [8](#)
- hard and soft, [16](#) , [212 –215](#) , [243](#)
- how camera sees, [24 –25](#)
- intensity of, [6](#)
- Inverse Square Law, [17](#)
- loop, [207](#)
- off computer screen, [331 –335](#)
- packing list for, [226 –231](#)
- portrait, [205](#)
- reflections of, [251 –256](#)
- Rembrandt, [205 –206](#)
- replicating natural source of, [284 –286](#)
- sidelighting, [9](#)
- up, [10](#)
- white balance, [13 –14](#)

## lighting studies

- Beverage Bottle, [391 –394](#)
- Bike Rider, [358 –362](#)
- Camera Body, [386 –390](#)
- Cody, [287 –290](#) , [309 –313](#) , [336 –340](#)
- Dancer, [274 –278](#) , [298 –301](#) , [322 –327](#)
- Dugout, [279 –283](#) , [302 –305](#) , [328 –330](#)
- Golf Swing, [348 –352](#)
- Karate Kick, [363 –368](#)
- Kids, [284 –286](#) , [306 –308](#) , [331 –335](#)
- Knife Set, [380 –385](#)
- Librarian, [291 –294](#) , [314 –317](#) , [341 –344](#) , [345](#)



- Soccer Kick study, [353 –357](#)
- Strawberry Splash, [372 –376](#)
- Sunglasses and Watch, [377 –380](#)
- Wine Pour, [395 –398](#)

## liquids

- Beverage Bottle study, [391 –394](#)
- drops, splashes, and pours, [267 –269](#)
- Strawberry Splash study, [372 –376](#)
- Wine Pour study, [395 –398](#)

lithium batteries, [99](#)

locking lighting consistency, [157](#)

loop lighting, [207](#)

low-discharge NiMH, [98 –99](#) , [100](#)

LumiQuest modifiers, [129](#)

## M

macro photography, [97](#) , [106 –107](#) , [257 –260](#)

mAh (milliampere-hour), [100](#)

Maha MH-C801D charger, [101](#)

main light, [205](#)

Manual (M) mode, [45](#) , [46](#) , [152 –153](#) , [174](#) , [176 –177](#)

Master Flash, [167](#) . *See also* [Commander mode](#)

Matrix metering mode, [29 –30](#)

measuring light

- ambient and flash, [30 –32](#)

- light meters for, [22 –23](#)

- metering modes, [26 –29](#)

- TTL technology, [22](#)

memory cards, [227](#)

metal surfaces, [252](#)

metering modes

- about, [26](#) , [32](#)

- Center-Weighted, [28 –29](#)

- getting proper exposure with, [23](#)

- Highlight-Weighted, [27 –28](#)

- Matrix, [29 –30](#)

- Spot, [26 –27](#)

misfires with SU-4 mode, [196](#)

modes. *See* [metering modes](#) ; [flash modes](#) ; [Remote mode](#)

mounting

SB-300, [68](#)

SB-500, [69](#) , [70](#)

SB-700, [72](#)

SB-800, [87](#) , [88](#)

SB-900, [91](#) , [92](#)

SB-910, [76](#) , [77](#)

SB-R200, [80](#)

SU-800 Commander, [81](#) , [82](#) , [103](#)

mounting devices, [133](#) –[142](#)

about, [133](#) , [142](#)

booms, [139](#)

brackets, [140](#) –[142](#)

C-stands, [138](#) –[139](#)

flash stands, [134](#) –[135](#)

Justin clamp, [135](#) –[136](#) , [227](#) , [228](#)

light stands, [137](#) –[138](#)

multiple flash brackets, [141](#) –[142](#) , [236](#)

multiple off-camera flashes, [321](#) –[345](#)

about, [321](#) , [344](#)

adding extra light with, [322](#) –[327](#)

adding harder light with, [328](#) –[330](#)

mimicking light off computer screen, [331](#) –[335](#)

multiple Speedlights. *See also* [multiple off-camera flashes](#)

environmental portrait with, [223](#)

headshots using, [225](#)

portrait lighting with, [215](#) –[216](#)

product photos using, [264](#) –[266](#)

three or more lights, [217](#)

using multiple flash bracket for, [141](#) –[142](#) , [236](#)

## N

Nikon Creative Lighting System (CLS). *See also* [AWL](#) ; [FV Lock](#)

about, [56](#) , [147](#) , [163](#)

AF-Assist Illuminator, [161](#) –[162](#)

components of, [53](#) , [55](#)

Flash Color Information Communication feature, [162](#) –[163](#)

- Flash Compensation settings in, 49 –50
- flash modes, 148 –149
- Guide Numbers, 148
- professional cameras in, 56 –57
- radio triggers vs., 189
- sync speed and high-speed sync, 159 –161
- TTL technology for, 21 , 149 , 158 –159

Nikon metering modes, 26 –29

NiMH rechargeable batteries, 98 –99 , 100

## O

---(Off) mode, 174

off-camera flash triggers, 185 –199 . *See also* multiple off-camera flashes ; single off-camera flashes

- mixing radio and line-of-sight triggers, 196 –199
- radio triggers, 189 –192
- SU-4 mode, 192 –196
- using groups of, 185 , 186 –188
- working with remote flashes, 186 –188

older Speedlight models, 83 –94

outdoor Speedlight firing, 196

## P

packing for shoot, 220

paper surfaces, 253 –254

Paramount lighting, 208

photo studies. *See* lighting studies

planning for location shots, 219 , 220 –221

plastic surfaces, 253

PocketWizard, 189 –191 , 197

pop-up flash, blocking light from, 97

portrait shoots, 203 –231 . *See also* multiple off-camera flashes ; single-flash portrait shoots ; single off-camera flash shots

- about, 203 , 231
- action, 233
- avoiding eye blinking, 157
- broad and short lighting, 210 –211
- butterfly lighting, 208

- controlling shadows with, 204 –205
- diffusion panels for, 118 –120
- headshots, 225
- loop lighting, 207
- one and two lights for, 215 –216
- packing for locations, 226 –231
- Rembrandt lighting, 205 –206
- shooting environmental portraits, 218 –225
- soft light vs. hard light, 212 –215
- softboxes for, 118 , 206 , 207
- split lighting, 209
- three or more lights for, 217
- positioning
  - remote flash, 314 –317 , 361 , 362
  - shots with off-camera flash, 302 –305
- power. *See also* batteries
  - adjusting remote group power settings, 175 –177
  - battery, 98
  - needed for action shots, 236
- pre-flash, 30 –31
- product photography, 241 –269 , 371 –399
  - basics of, 242 –244
  - Beverage Bottle study, 391 –394
  - Camera Body study, 386 –390
  - close-ups for, 257 –260
  - drops, splashes, and pours, 267 –269
  - Knife Set study, 380 –385
  - multiple Speedlights for, 264 –266
  - preparing items for, 248 –251
  - reflections, 251 –256
  - setting up, 244 –247
  - Speedlights for, 371 , 399
  - Strawberry Splash study, 372 –376
  - Sunglasses and Watch study, 377 –380
  - using one Speedlight, 260 –263
  - Wine Pour study, 395 –398
- professional Nikon cameras, 55 , 56 –57
- Program Auto (P) mode, 45 , 46

## Q

quarter cut, [124](#)

Quick Wireless Control mode, [181](#) – [182](#)

## R

radio triggers, [189](#) – [192](#)

    mixing with line of sight, [196](#) – [199](#)

    pros and cons of, [189](#) – [191](#)

    TTL for, [192](#)

    using, [191](#) – [192](#)

RadioPopper, [189](#)

Rear-Curtain Sync, [233](#) , [237](#) , [238](#) , [239](#)

rechargeable batteries

    chargers for, [101](#)

    compatibility with chargers, [99](#)

    NiMH, [98](#) – [99](#) , [100](#)

    planning use of, [101](#) – [102](#)

recomposing images with FV Lock, [155](#) – [157](#)

reflected light meter, [22](#) , [23](#)

reflections, [251](#) – [256](#)

    adjusting light for different reflective surfaces, [386](#) – [390](#)

    angle of, [251](#) , [252](#)

    diffuse, [252](#)

    reducing on product photos, [377](#) – [385](#)

    specular, [251](#) , [252](#)

    using gobos and flags, [255](#) – [256](#)

reflectors, [127](#) , [230](#) – [231](#) , [284](#) , [285](#) , [286](#) , [287](#) – [290](#)

Rembrandt lighting, [205](#) – [206](#)

remote flash groups

    adjusting output ratios for, [181](#) – [182](#)

    combining radio and line-of-sight triggers, [196](#) – [199](#)

    controlling flash modes for Commander and, [174](#) – [175](#)

    firing, [170](#) , [183](#) , [185](#) , [186](#) – [188](#) , [367](#)

    illustrated, [186](#) , [187](#)

    lighting with, [186](#) – [188](#) , [297](#) , [326](#) , [329](#) , [333](#) , [335](#) , [339](#) , [344](#) , [393](#)

    power settings for, [175](#) – [177](#)

    testing, [187](#) – [188](#)

TTL modes for, [176](#)  
Remote mode. *See also* [single off-camera flash shots](#)  
channel settings for, [168](#)  
SB-500 in, [70](#) , [167](#)  
SB-600, [86](#) , [167](#) , [168](#)  
SB-700, [70](#) , [74](#) , [157](#)  
SB-800, [90](#) , [167](#) , [169](#)  
SB-900 in, [94](#)  
SB-910 in, [79](#) , [168](#) , [169](#)  
SB-R200 always in, [79](#) –[80](#)  
unavailable for SB-300, [68](#)  
using Speedlights in, [167](#) –[170](#)  
Repeating Flash Commander mode, [178](#) –[180](#)  
Repeating (RPT) flash mode, [153](#) –[154](#)  
Rogue FlashBender, [130](#) , [131](#) , [228](#) , [229](#) , [274](#) –[278](#) , [291](#) , [292](#)  
Rogue Grid, [121](#) –[122](#) , [130](#) , [228](#) , [229](#) , [273](#) , [279](#) –[283](#)  
Rogue Universal gels, [126](#) , [130](#)

## S

sandbag, [349](#) , [354](#)  
SB-300 Speedlight, [67](#) –[68](#)  
SB-400 Speedlight, [83](#)  
SB-500 Speedlight  
about, [67](#)  
Commander mode, [68](#) –[69](#) , [70](#) , [171](#)  
features, [68](#) –[70](#)  
Remote mode for, [70](#) , [167](#)  
SB-600 Speedlight, [70](#) , [71](#) , [83](#) –[86](#) , [167](#) , [168](#)  
SB-700 Speedlight  
about, [67](#)  
Commander mode, [70](#) , [74](#) , [167](#) , [172](#) , [174](#)  
features of, [71](#) –[74](#)  
Quick Wireless Control mode, [181](#)  
remote group power settings, [175](#)  
Remote mode, [70](#) , [74](#) , [157](#)  
SU-4 mode settings, [193](#)  
SB-800 Speedlight, [83](#) , [86](#) –[90](#)  
close-up work for, [107](#)

- Commander mode, [89](#) , [172](#) , [173](#) , [174](#) , [175](#)
- remote group power settings, [175](#)
- Remote mode, [90](#) , [167](#) , [169](#)
- Repeating Flash Commander mode, [178](#) , [179](#) , [180](#)
- SU-4 mode settings, [193](#)
- SB-900 Speedlight, [90](#) –[94](#) , [168](#) , [172](#) , [175](#)
  - Commander mode, [94](#) , [175](#)
  - remote group power settings, [175](#)
  - Repeating Flash Commander mode, [178](#)
  - SU-4 mode settings, [194](#)
- SB-910 Speedlight
  - about, [67](#)
  - Commander mode, [78](#) –[79](#) , [172](#) –[173](#) , [175](#)
  - features of, [75](#) –[78](#)
  - GN mode for, [151](#)
  - remote group power settings, [175](#)
  - Remote mode, [79](#) , [168](#) , [169](#)
  - Repeating Flash Commander mode, [154](#) , [178](#) , [179](#)
  - SU-4 mode settings, [194](#)
  - TTL and Auto-Aperture mode for, [149](#) –[150](#)
- SB-R200 Speedlight, [79](#) –[80](#) , [108](#) , [109](#) , [169](#) –[170](#)
- sensors
  - covering Speedlight, [196](#)
  - FX and DX format for, [58](#)
  - rotating toward SU-800 signal, [349](#)
- shadows
  - basic lighting addressing, [205](#) –[211](#)
  - controlling portraits, [204](#) –[205](#)
  - diffusion dome dispersing hard, [274](#) –[278](#)
  - with hard and soft light, [212](#) –[215](#)
- shooting
  - cleaning items before, [248](#) –[249](#)
  - environmental portraits, [218](#) –[225](#)
  - organizing Speedlight groups for, [186](#) –[188](#)
  - packing for, [220](#)
- shoots, product photo accessories for, [245](#) –[247](#)
- short lighting, [210](#) –[211](#)
- shutter release button, [35](#)



shutter speed

calculating for action shots, 356 , 360

combining with aperture and ISO, 42 , 44

controlling exposure with, 36 –38 , 39

High-Speed Sync with fast, 159 –161 , 233 , 234 –235 , 239

Shutter Speed Priority (S) mode, 45 , 46

sidelighting, 9

single-flash portrait shoots, 273 –295

about, 274 , 295

creating white poster board reflector for, 287 –290

dispersing hard shadows, 274 –278

focusing tight light with, 279 –283

library location shoot, 291 –294

replicating natural light source with, 284 –286

single-flash product photos, 260 –263

single off-camera flash shots, 297 –318

about, 297 , 318

changing shooting positions with, 302 –305

creating soft light for, 298 –301

illuminating entire scene with, 306 –308

improving control over light in, 309 –312

positioning remote flash for, 314 –317

single-use batteries, 99

Slave Flash, 167

snoots, 120 –121 , 223 , 291 , 292 , 293 , 382 , 383

Soccer Kick lighting study, 353 –357

soft light

creating with single off-camera flash, 298 –301

Dancer lighting studies in, 274 –278 , 298 –301 , 322 –327

defined, 16

distance between product and source of, 243 , 244

working with, 212 –213 , 214

softboxes, 117 –118 , 129 , 131 , 189 , 206 –211 , 230 , 298

specular reflection, 251 , 252

Speedlights. *See also* accessories ; light modifiers ; mounting devices ; multiple Speedlights ; *and specific flashes*

adjusting to camera sensors, 58

battery use with, 102

- checklist for packing, 226 , 228
- Commander mode, 70 , 166 –167 , 171 –173
- compatibility of all, 95
- components of, 66
- firing remote groups, 170 , 183 , 185 , 186 –188 , 367
- flash illumination patterns for, 114 –115
- flash modes, 148 –149
- flash stands for, 134 , 135
- flashing through umbrellas, 116 –117
- gels for, 123
- Guide Numbers for, 148
- labeling groups of, 187
- locking flash output consistency, 157
- mixing radio and line-of-sight triggers for, 196 –199
- multiple, 215 –216 , 217 , 264 –266
- older and discontinued, 83 –94
- part of CLS, 53 , 55
- product photography with, 260 –263
- Remote mode for, 70 , 166 –167
- SB-300, 67 –68
- SB-400, 83
- SB-500, 67 , 68 –70
- SB-600, 70 , 71 , 83 –86 , 167 , 168
- SB-700, 67 , 70 –74
- SB-800, 83 , 86 –90 , 172 , 173 , 174
- SB-900, 90 –94 , 168 , 175
- SB-910, 67 , 75 –79 , 172 –173
- SB-R200, 79 –80 , 108 , 109 , 169 –170
- shooting outdoors with, 196
- softboxes, 117 –118 , 129 , 131
- SU-800 Commander, 81 –82 , 103
- tilt and rotation of, 113
- TTL mode with, 66
- types of, 67
- using with professional-level cameras, 56 –57
- wide-angle diffuser panels, 113
- zoom controls for, 112
- splashes, 267 –269 , 372 –376

- split lighting, [209](#)
- Spot metering modes, [26](#) –[27](#)
- story telling in portraits, [219](#)
- studio examples. See [product photography](#) ; [portrait shoots](#) ; [lighting studies](#)
- SU-4 mode, [192](#) –[196](#)
- SU-800 Speedlight
  - as Commander, [81](#) –[82](#) , [103](#) , [173](#)
  - Quick Wireless Control mode, [181](#) –[182](#)
  - remote group power settings for, [175](#)
- subjects
  - avoiding blinking, [157](#)
  - distance between light and, [243](#) –[244](#)
  - giving role to play, [318](#)
  - knowing, [219](#)
  - photographing multiple, [284](#)
- Sunglasses and Watch lighting study, [377](#) –[380](#)
- sunlight, [13](#) , [350](#)
- supplemental battery pack, [103](#)
- sync speed
  - defined, [38](#) , [234](#)
  - events for, [159](#) –[160](#)
  - setting up, [161](#)

## T

- temperature
  - gels for color, [123](#) –[125](#)
  - light, [12](#)
  - white balance settings for, [14](#)
- testing remote flash groups, [187](#) –[188](#)
- Think Tank Photo Shape Shifter backpack, [358](#)
- triggers. See [off-camera flash triggers](#) ; [radio triggers](#)
- TTL modes
  - about, [55](#)
  - about TTL, [21](#) , [158](#) –[159](#)
  - adjusting Flash Compensation in, [49](#)
  - adjusting power by remote groups in, [176](#)
  - Auto-Aperture mode vs., [174](#) , [177](#)

- flash modes with, [174](#)
- radio triggers using, [192](#)
- Speedlights in, [66](#)
- types of, [159](#)
- using with Close-up mode, [107](#)

TTL remote cords, [104](#) – [105](#) , [226](#) , [228](#) , [261](#) , [342](#) – [343](#) , [344](#)

## U

umbrella brackets, [140](#) – [141](#) , [229](#)

umbrellas, [116](#) – [117](#) , [230](#) , [298](#) , [299](#) , [300](#) , [322](#) , [324](#) , [325](#) , [337](#) – [338](#) , [349](#) , [351](#) , [352](#)

up lighting, [10](#)

## V

variable aperture zoom lenses, [42](#)

## W

Westcott Rapid Box, [309](#) , [310](#) , [312](#) , [353](#) , [354](#) , [363](#)

Westcott softboxes, [131](#) , [189](#) , [230](#)

white balance, [13](#) – [14](#) , [15](#)

wide-angle diffuser panel, [112](#) – [113](#)

Wine Pour lighting study, [395](#) – [398](#)

## Z

zoom lenses, [42](#)

zooming flash head, [112](#)

# Appendix. Speedlight Resources

Wondering where to track down the gear mentioned in this book? You've come to the right place. This appendix contains links to all the gear discussed in this book, as well as a list of resources for using the Nikon Creative Lighting System and small flashes in general.

## Nikon

Nikon has a lot of resources online for photographers. Here are the links to some of the most important Nikon resources:

- **Nikon Worldwide** : [www.nikon.com](http://www.nikon.com)
- **Nikon USA** : [www.nikonusa.com/en/index.page](http://www.nikonusa.com/en/index.page)
- **Nikon Learn and Explore** : [www.nikonusa.com/en/Learn-And-Explore/index.page](http://www.nikonusa.com/en/Learn-And-Explore/index.page)
- **Nikon Speedlights** : <http://imaging.nikon.com/lineup/speedlights/index.htm>
- **Nikon Refurbished** : [www.nikonusa.com/en/Nikon-Store/Refurbished-Cameras.page](http://www.nikonusa.com/en/Nikon-Store/Refurbished-Cameras.page)
- **Nikon Professional Services** : [www.nikonpro.com](http://www.nikonpro.com)

## Light Modifiers

When it comes to light modifiers, I always have at least a Rogue FlashBender in my camera bag because they are easy to use, lightweight, and virtually indestructible. Depending on the shoot, I may also bring an umbrella, soft-box, or snoot. Here's a list of links for the various light modifiers that I use on a regular basis:

- **HonlPhoto** : [www.honlphoto.com](http://www.honlphoto.com)
- **LumiQuest** : <http://lumiquest.com>
- **Lastolite** : [www.lastolite.us](http://www.lastolite.us)
- **McNally Lastolite Signature Range** : [www.lastolite.us/joe\\_mcnally](http://www.lastolite.us/joe_mcnally)
- **Sto-fen** : [www.stofen.com/index.asp](http://www.stofen.com/index.asp)
- **Expo Imaging** : [www.expoimaging.com](http://www.expoimaging.com)
- **Rogue FlashBenders, Grids, and Gels** : [www.rogueflash.com](http://www.rogueflash.com)

- **Westcott** : [www.fjwestcott.com](http://www.fjwestcott.com)
- **Westcott Rapid Box for Speedlights** :  
[www.fjwestcott.com/light-modifiers/rapid-box/rapid-box-speedlites](http://www.fjwestcott.com/light-modifiers/rapid-box/rapid-box-speedlites)

## Stands, Grips, Backgrounds, and Bags

As you've seen in the behind-the-scenes figures throughout the book, successful photo shoots often rely on a cast of supporting players—from the bags that carry your gear to a location to the stands and clamps that hold your Speedlights and background during the shot. For instance, I use a lot of different light stands. Most of them were the house brand for a camera store that is now out of business. You can use just about any light stand, but I do like the Adorama Flashpoint stands. Manfrotto makes great tripods and monopods, but they also a variety of stands that are solid and reliable. You can learn more about these light stands, as well as the other useful clamps, backgrounds, and cases, at these links:

- **Adorama Flashpoint Light Stands** : [www.adorama.com/1/Lighting-and-Studio/Light-Stands-and-Booms-and-Supports/Flashpoint~Light-Stands](http://www.adorama.com/1/Lighting-and-Studio/Light-Stands-and-Booms-and-Supports/Flashpoint~Light-Stands)
- **Manfrotto Worldwide** : [www.manfrotto.com](http://www.manfrotto.com)
- **Manfrotto USA** : [www.manfrotto.us](http://www.manfrotto.us)
- **Justin Clamp** : [www.manfrotto.com/spring-clamp-w-shoeflash](http://www.manfrotto.com/spring-clamp-w-shoeflash)
- **Frio Cold Shoe** : <https://enlightphotopro.com/gear/frio-v2-coldshoe>
- **Seamless Paper**: <http://savageuniversal.com/products/seamless-paper>
- **Westcott Background Stand Kit** : [www.fjwestcott.com/backgrounds/stands-storage](http://www.fjwestcott.com/backgrounds/stands-storage)
- **Westcott Backgrounds** : [www.fjwestcott.com/backgrounds](http://www.fjwestcott.com/backgrounds)
- **Pelican** : [www.pelican.com](http://www.pelican.com)
- **ThinkTankPhoto** : [www.thinktankphoto.com](http://www.thinktankphoto.com)
- **Photoflex** : <https://photoflex.com>

## Radio Triggers

For some setups, a radio trigger is the best tool to trigger off-camera flashes. I have used both the Pocket Wizard and Radio

Popper brands in the past, and both work great. You can find more information here:

■ **Pocket Wizard** : [www.pocketwizard.com](http://www.pocketwizard.com)

■ **Radio Popper** : [www.radiopopper.com](http://www.radiopopper.com)

## Photographers

The following photographers are the Nikon Ambassadors for the United States. These are the top photographers out there today using (and in some cases abusing) Nikon cameras, lenses, and Speedlights. Looking for some inspiration? Just visit any of these links, and check out some of the best work being produced today:

■ **Joe McNally** : [www.joemcnally.com](http://www.joemcnally.com)

■ **Dave Black** : [www.daveblackphotography.com](http://www.daveblackphotography.com)

■ **Cliff Maunter** : [www.cmphotography.com](http://www.cmphotography.com)

■ **Moose Peterson** : [www.moosepeterson.com/blog](http://www.moosepeterson.com/blog)

■ **Lynsey Addario** : [www.lynseyaddario.com](http://www.lynseyaddario.com)

■ **James Balog** : <http://jamesbalog.com>

■ **Blair Bunting** : [www.blairbunting.com](http://www.blairbunting.com)

■ **Bambi Cantrell** : [www.cantrellportrait.com](http://www.cantrellportrait.com)

■ **Dixie Dixon** : [www.dixiedixon.com](http://www.dixiedixon.com)

■ **Bill Frakes** : [www.billfrakes.com](http://www.billfrakes.com)

■ **Jerry Ghionis** : [www.jerryghionis.com](http://www.jerryghionis.com)

■ **Lucas Gilman** : [www.lucasgilman.com](http://www.lucasgilman.com)

■ **Andrew Hancock** : [www.andrewhancock.com](http://www.andrewhancock.com)

■ **Tamara Lackey** : <http://tamaralackey.com>

■ **Robin Layton** : [www.robinlayton.com](http://www.robinlayton.com)

■ **Sandro** : [www.sandrofilm.com](http://www.sandrofilm.com)

■ **Corey Rich** : [www.coreyrich.com](http://www.coreyrich.com)

■ **Brian Skerry** : [www.brianskerry.com](http://www.brianskerry.com)

■ **Vincent Versace** : [www.versacephotography.com](http://www.versacephotography.com)

■ **Ami Vitale** : [www.amivitale.com](http://www.amivitale.com)